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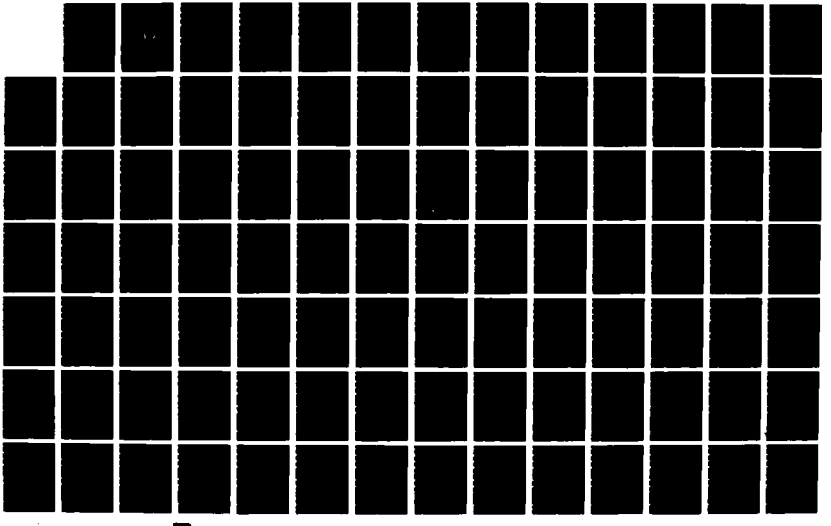

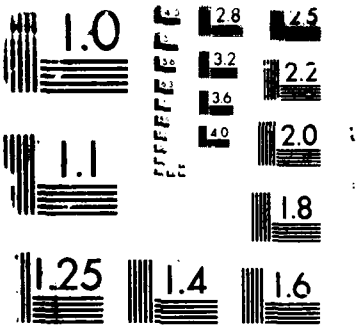

US Department
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**Federal Aviation
Administration**

Office of Aviation Policy
and Plans

Washington, D.C. 20591

(2)

Allocation of Future Federal Airport and Airway Costs

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16. Abstract

This document was prepared under the supervision of the Office of Aviation Policy and Plans of the Federal Aviation Administration (FAA). It provides technical documentation for the FAA's report, "Airport and Airway Costs: Allocation and Recovery in the 1980s," (FAA-APO-87-7).

This volume focuses on the methods used to make future allocations of projected FAA costs. It presents projected cost allocation estimates for the period 1988 through 1997. The results reflect the full implementation of the National Air Space Plan (FAA's capital expenditure plan) and the staffing and productivity changes that will result from its implementation.

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SECTION 1.0

INTRODUCTION

1.1 Purpose

The purpose of the cost allocation study is to allocate current and future costs among users of the FAA's airport and airway systems. These cost allocations provide information useful in analyzing user taxes to cover the period 1988-1997.

The results presented in this volume are based upon FAA plans for NASP implementation as of the Fall of 1985. These plans included projected changes in staffing and productivity which are reflected in future operating costs, and user allocations.

The present volume reports the results of the allocation of future FAA costs among users. Volume 1 presents an extensive discussion of the methodologies employed in this study, together with detailed presentation of the results for the year 1985.

1.2 Overview and Summary of Results

The allocations of future FAA costs are based upon the same methodologies presented in Volume 1. FAA airport and airway costs are allocated to users by applying the concept of avoidable costs. These are the costs that would be avoided by the FAA if a user group discontinued its use of all or part of the FAA airport and airway systems. Any costs which are jointly attributable to

users are allocated among them based upon Ramsey Pricing which minimizes the distortion in aviation markets resulting from the allocation of joint costs.

This study presents two types of allocations: a full cost allocation of the entire FAA budget, and an estimated minimum general aviation allocation. The main distinction between the two types of allocations is that in the latter case, general aviation users are not assigned a share of joint costs. Otherwise, the methodologies employed are nearly identical.

In developing these allocations for the future, there are four major issues that had to be addressed: inflation, changes in activity, the effect of the National Airspace System Plan (NASP) on productivity, and the amortization of facilities and equipment (F&E). Each of these issues is briefly addressed below.

1.2.1 Inflation

Future inflation will affect not only the size of FAA budgets, but also the allocation of costs among users. This is true because not all users consume the same mix of FAA services. For example, general aviation users of the airport and airway system consume relatively more air traffic control services than facilities and equipment services. Higher inflation in the cost of operating ATC sites would have a more immediate impact on general aviation's share of the FAA budgets than an increase in the cost of F&E. The reverse would be true of air carriers, which consume a relatively large share of F&E.

Shown in Table 1.1 are the inflation assumptions used for future cost projections.

Table 1.1

INFLATION RATE ASSUMPTIONS

	1985-1992	1993-1997
Labor	3.5%	4.6%
Other Cost Centers	FAA Projections	4.6%

The 3.5 percent annual inflation rate for the period 1985-1992 is consistent with the most recent 1986 Economic Report of the President. For the years following 1992, the producers price index projections made by Wharton Econometric Forecasting Associates[1] were employed. This latter set of projections was selected because government labor costs seem to closely correspond to changes in this index. For example, over the period 1975 through 1985, general government salaries increased by a rate almost identical to the producers price index.

The FAA budget office makes projections of the other FAA cost centers--F&E, R&D, and airport grants, as well as the total O&M budget. These projections were used to govern planned spending levels for these cost centers for the period 1985 through 1992. Thereafter, projections were unavailable, and future costs were assumed to increase at the same rate as FAA labor.

1.2.2 Activity

The FAA makes projections of activity at its operating sites. These projections were used in the present study, and are summarized in Table 1.2.

Table 1.2

INDICES OF FUTURE ACTIVITY
(1985=100)

	1992	1997
ARTCCs	125.4	139.1
FSSs	114.5	123.3
TRACONs	121.8	135.7
Towers	134.3	150.3

As can be seen, the most dramatic growth is projected to take place at FAA towers, where activity will increase by 50 percent by the year 1997 over 1985 levels. Thirty-nine percent increases are forecast at ARTCCs while TRACONs should see increases of nearly 36 percent. FSS services are predicted to grow 23 percent during the same time period.

1.2.3 Effect of NASP Productivity

By the year 1992, new technologies contemplated under the National Airspace System Plan should be initiated.[2] The new technologies put into place will affect both air traffic control labor productivity, and also the productivity of those FAA personnel performing maintenance at ATC facilities. In order to identify the impacts of NASP productivity, cost functions for the

year 1992 were developed for ARTCCs, FSSs, TRACONs and towers. These cost functions show the relationship between projected cost and activity, and more specifically identify future marginal costs.

The result of this analysis shows that for the most part new technologies will lower unit costs of production at FAA facilities. For users of each type of facility, the cost savings (in constant dollars) would approximate the following:

ARTCCs:	22-25 percent
FSSs:	36 percent
TRACONs:	5 percent
Towers:	9-34 percent

Details of these results can be found in Section 2.2.

1.2.4 Amortization of F&E

One methodological change for future years (as opposed to those presented in Volume 1) pertains to the amortization of F&E. The 1978 FAA cost allocation study did not amortize F&E; instead, expenditures were expensed in a single year. Expensing may lead to a misidentification of actual attributable costs because capital is consumed over time and not in a single year. For example, suppose the FAA spends money on capital equipment at a certain site in one year and then spends nothing on capital in the next three years. If users pay for that capital in the same year, then all future users would enjoy its benefits free of charge. Arguably, such a treatment is inequitable if it does not reflect the actual consumption of the capital services produced.

In the present study, future FAA F&E budgets are amortized over a 13 year period, which corresponds to the average

replacement rate of airway capital equipment. Near-term F&E costs are relatively large by historic standards. The amortized F&E results were, therefore, accumulated in such a way as to estimate a constant annual F&E budget over the period. This was done to estimate future revenues to accommodate relatively high F&E costs attributable to near-term NASP expenditures. Details on this procedure can be found in Section 2.3 and in Appendix A of this volume.

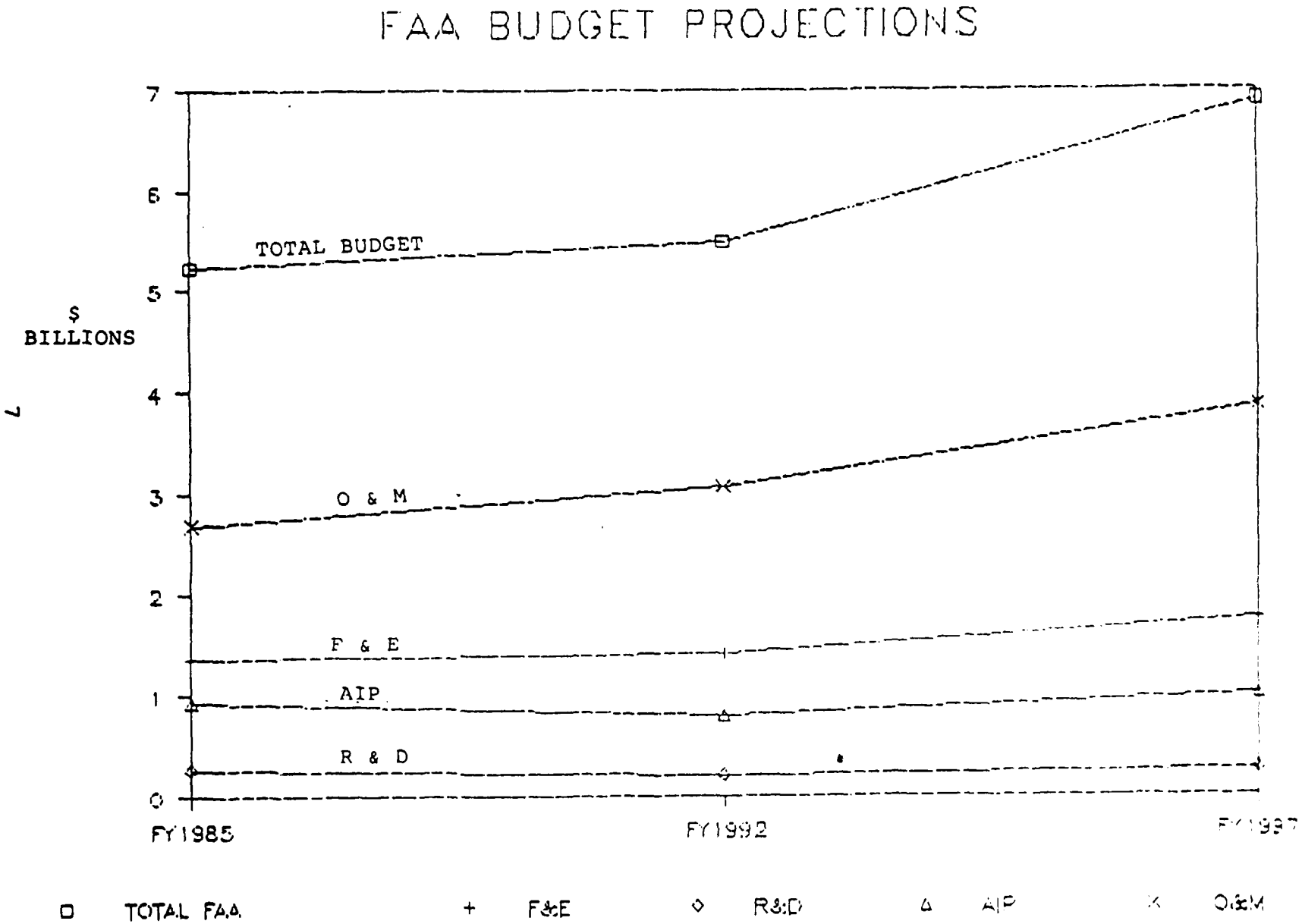
1.2.5 Summary of Results

Shown in Figure 1.1 are the projections of the major FAA cost centers over the period 1985 through 1997. During that time period, these budgets are projected to grow at the following annual rates:

O&M	3.1 percent
F&E	2.3 percent
R&D	0.0 percent
Airport Grants	0.7 percent

During that same time period, the shares of air carriers and general aviation users are projected to increase slightly, while the shares of public sector users are projected to fall. The relative decline in the public sector's share of the FAA budget reflects the projected constancy of military activity at FAA operating sites.[3] During the period 1985 through 1997, air carrier and general aviation operators will increase activity at all FAA operating sites. As a result, the relative share attributable to the public sector, which is dominated by the military, declines.

Figure 1.1


FAA BUDGET PROJECTIONS
$ BILLIONS
7
6
5
4
3
2
1
0
TOTAL BUDGET
O & M
F & E
AIP
R & D
FY1985
FY1992
TOTAL FAA
F&E
R&D
AIP
O&M

The actual allocations for the years 1985, 1992, and 1997 are shown in Figures 1.2 and 1.3. The former chart pertains to the case where regulatory costs are allocated to users, while the latter pertains to the situation where these costs are allocated to the public. The relative decline in public sector shares is evident in both charts.

Finally, the minimum general aviation allocation is projected to increase from approximately 11 percent to approximately 14 percent in the time period 1985 through 1997. This occurs for two reasons: first, because of the relative decline in military activity, and second because the increase in general aviation activity causes a relative increase in the size of the minimum GA allocation over time. The latter occurs because general aviation consumes a relatively large share of air traffic services (ATC) relative to other services produced by the FAA. ATC services are projected to grow more rapidly than other demands on FAA resources.

1.3 References to Other Volumes

Descriptions of the databases which form the basis for the cost allocations reported in this volume can be found in Volume 6. Detailed discussions of the methodology are presented in Volume 1. User tax options based on results in Volumes 1 and 2 are reported in Volume 4.

Separate volumes have also been developed on public sector cost categories and on econometric cost estimation techniques. These are Volumes 3 and 5 respectively.

Figure 1.2

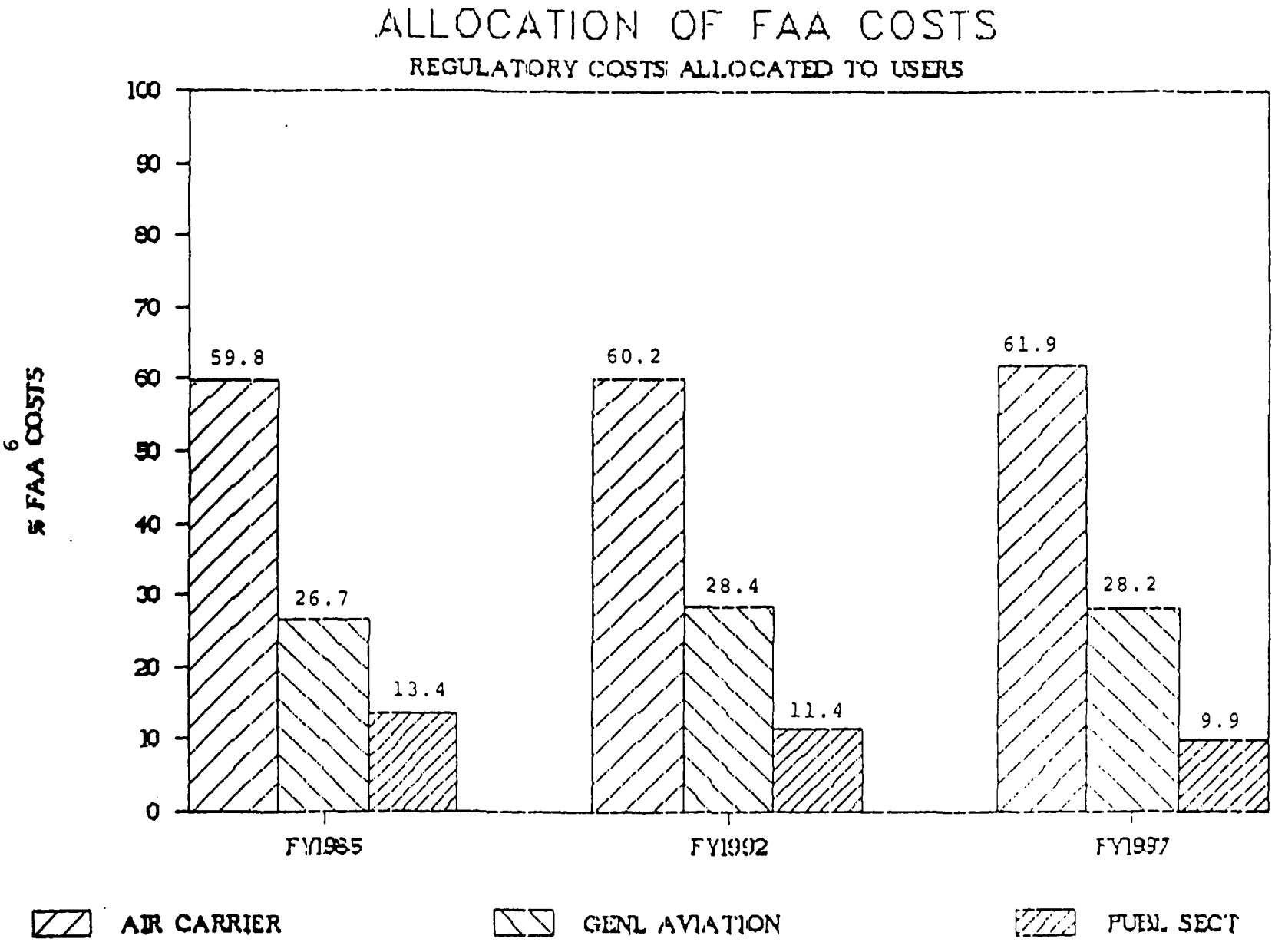
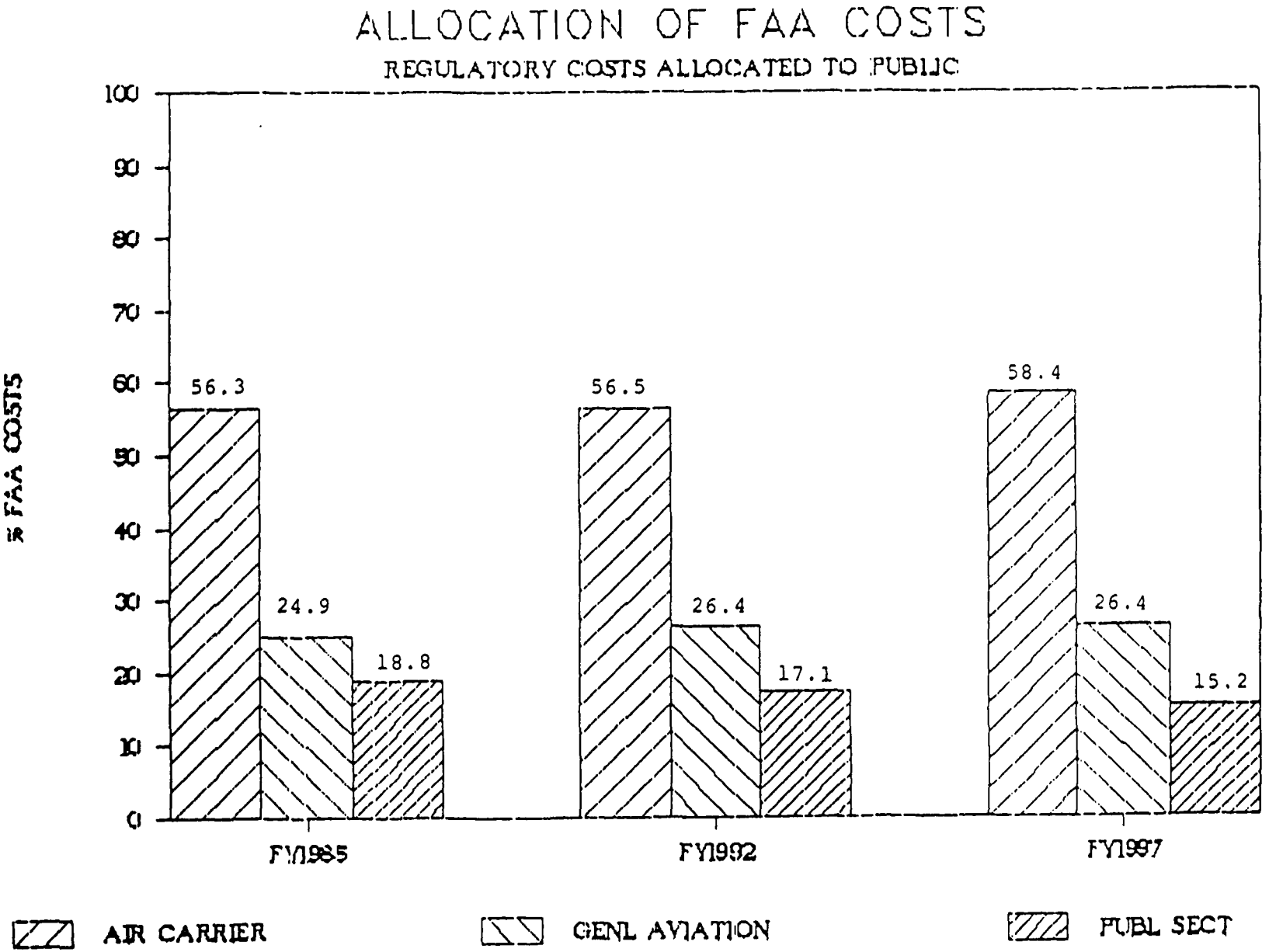

ALLOCATION OF FAA COSTS
REGULATORY COSTS ALLOCATED TO USERS
% FAA COSTS
100
90
80
70
60
50
40
30
20
10
0
59.8
26.7
13.4
60.2
28.4
11.4
61.9
28.2
9.9
FY1985
FY1992
FY1997
AIR CARRIER
GENL AVIATION
FUEL SECT

Figure 1.3


ALLOCATION OF FAA COSTS
REGULATORY COSTS ALLOCATED TO PUBLIC
% FAA COSTS
100
90
80
70
60
50
40
30
20
10
0
56.3
24.9
18.8
56.5
26.4
17.1
58.4
26.4
15.2
FY1985
FY1992
FY1997
AIR CARRIER
GENL AVIATION
PUBL SECT

1.4 Organization of the Remainder of This Volume

Section 2 reviews the methodologies used to project FAA budgets and allocations in the future. Included are discussions of the 1992 cost functions, and the method for amortizing F&E. Section 3 presents a review of future allocations for the entire budget, and subcategories of the budget. Detailed presentations of results for each of the years from 1986 through 1997 are found in Section 4. Included here are the allocations of both direct and indirect cost to each of the ten user groups included in this study, as well as a detailed presentation of the minimum general aviation allocation.

Also included in this volume as Appendix A is a more rigorous examination of the reasons and methods for amortizing F&E.

Section 2.0

METHODOLOGY

This section reviews the methodology of the allocations of the FAA budgets for the years 1985 through 1997. The focus in this report is on the methods for projecting budgets and allocations into the future. Details of the the other aspects of the methodology are presented in Volume 1.

The discussion begins with a general overview of methodologies. This is then followed by a discussion of the 1992 econometric results, and the methodology employed to amortize FAA F&E. Further details of the last topic are presented in Appendix A.

2.1 Projection and Allocation of Major Budget Categories

Shown in Table 2.1 is a summary of the methods for projecting and allocating major FAA budget categories in the future. The allocation method for future years is the same as in the base year 1985. Included in this chart are the definitions of each budget category, the allocation methodology employed, and the projection methods for two time periods: 1986-1992, and 1993-1997.

The FAA budget is divided into four general budget categories:

- Operations and Maintenance (O&M),
- Facilities and Equipment (F&E),
- Research and Development (R&D),
- Airport Grants.

Each of these general budget categories is projected in the same manner as in the base year 1985. For the period 1986 through 1992, FAA budget projections were employed. For the period 1993 through 1997, a 4.6 percent annual inflation rate was assumed. The latter corresponds to the projected increase in the producer's price index in the same period.[4]

The O&M budget contains a variety of activities which have been segregated into subcategories: operating sites, safety regulation, NAVAID maintenance, and indirect costs. The projection methods for these O&M categories are also discussed in Table 2.1. As was noted previously, labor costs are assumed to increase at a 3.5 percent annual rate in the earlier time period, and then at the 4.6 percent rate between 1993 and 1997. Other notable aspects of the projection of these budget subcategories are as follows:

- o Operating Sites: Future costs of operating sites depend upon the realization of efficiency benefits of the NASP. These efficiency benefits are identified through the estimation of 1992 cost functions for each type of operating site. These cost functions are discussed in greater detail in Section 2.2. The efficiencies are assumed to begin in FY86, and are phased in evenly until they are fully realized in 1992.[5]
- o NAVAID Maintenance: This subcategory is affected by reductions in the cost of maintaining air traffic control systems attributable to new technologies being put in place.

Table 2.1

PROJECTION AND ALLOCATION OF MAJOR BUDGET CATEGORIES

Budget Category	Definition	Projection Method 1986-1992	Projection Method 1993-1997	Allocation Methodology
Total O&M	Includes operating sites, regulatory activities, maintenance and overhead items	FAA budget projections	4.6% annual inflation	Subcategories are allocated individually
o Operating Sites	Includes labor cost of operating and maintaining ARTCCs, FSSs, Towers and TRACONs	Based on 1984 and 1992 cost functions, FAA activity forecasts, and projected annual inflation of 3.5%	Based on 1992 cost functions, FAA activity forecasts, and 4.6% annual inflation	Variable costs allocated as the product of marginal costs and user group activity. Site joint costs allocated based on Ramsey pricing
o Safety Regulations	Includes aviation standards inspection and airport security, and the regulation of airports	Projected annual inflation of 3.5%	4.6% annual inflation	Allocated as a joint cost, or to the public sector depending on the scenario
o Navaid Maintenance	All maintenance labor not attributable to operating sites	Projected annual inflation of 3.5%, and effect of NASP on maintenance costs	4.6% annual inflation	Allocated as a joint cost
o Indirect Cost	Headquarters and regional administration, procurement and other indirect items	A residual based on (Total O&M - operating sites - safety regulations - Navaid maintenance)	A residual based on (Total O&M - operating sites - safety regulation - Navaid maintenance)	Allocated to other cost centers based on allocation statistis; and then to users as a joint cost
F&E	Airway capital costs	FAA budget projection; amortization schedule	4.6% annual inflation	Allocated to categories of users based on purpose of projects; amortized; and then allocated as a joint cost
R&D	Applied research to improve ATC services, or safety	FAA budget projections	4.6% annual inflation	Allocated to categories of users based on purpose of projects and then allocated as a joint cost
Airport Grants	Grants made to airports primarily for capital improvements	FAA budget projections.	4.6% annual inflation	Allocated to categories of users based on purpose of projects, and then allocated as a joint cost

- o F&E: As was noted previously, future F&E budgets are affected by the amortization techniques developed for this project.

2.1.1 Allocation

Also shown in Table 2.1 are the allocation methodologies employed in the study. The methods employed are exactly the same as those used in the FY1985 allocation, except for the amortization of F&E. For example, the variable costs at ATC operating sites are allocated by estimating the marginal cost for each user group, multiplying that cost by the group's activity, and summing over all user groups. Joint costs at these sites are allocated using Ramsey Pricing. Funds for research and development are allocated to user categories to the extent made possible by the stated purposes of the projects. Projects which cannot be allocated in this way are treated as joint costs. Detailed descriptions of these methodologies, and the others listed in the table can be found in Volume 1 of this study. The methodology for amortizing F&E expenditures is detailed in Section 2.3 of this volume.

The discussion now turns to two issues that are important in understanding the future allocations. The first is the 1992 cost functions for FAA operating sites; the second pertains to the reasons and methods for the amortization of F&E.

2.2 1992 Cost Functions

In order to evaluate the impact on labor productivity of the installation of new equipment, it was necessary to estimate cost

functions for ARTCCs, FSSs, TRACONs, and towers which reflected the impact of the new technology. The same techniques were used to estimate these cost functions as those developed in Volume 1. Only new datasets were required to develop these cost functions.

The data required to develop these cost functions are briefly described below:

- o ATC Labor: As part of the planning process for the NASP, FAA has developed new staffing standards for the new facilities. These staffing standards were used to derive estimates of air traffic control labor at each operating site.
- o Airway Facility Labor: As part of the planning process for the NASP, FAA has developed a forecast of the Facility Master File which identifies the location of all equipment at ATC operating sites. The number of labor hours to maintain each piece of equipment in the forecast FMF was used to develop approximations of the full-time equivalent personnel required to maintain each ATC operating site.
- o Labor Costs: FAA labor costs were assumed to increase at a 3.5 percent annual rate in the period 1985 through 1992, and 4.6 percent in the latter period.
- o Leased Telecommunications: One of the effects of the NASP will be to reduce the FAA's dependence on leased telecommunications. The relatively minor costs exhibited in 1984 should decline by 1992. No data were available on these costs in the future.

- o Activity: FAA projections of future activity were employed; adjustments to these forecasts were made in the same manner as described in Volume 1.

The results of the econometric analysis are shown in Table 2.2 together with a comparison of the results for 1984. All of the estimates are expressed in 1986 dollars. In general, the effect of the new technology will be to reduce the unit cost of FAA output. In part, the reduced unit cost may be due to the "larger size" of each facility. For example, FSS locations are scheduled to be reduced in number, and increased in size by 1992. The combination of improved technology, and larger sized facilities may account in part for the reduced unit costs. It also may be reflected in the increases in joint costs at each site reflected in the 1992 results.[6]

It should be noted that the econometric results for 1992 are used in both the 1985-1992 time period, and the 1993-1997 time period. In the former, it is assumed that one-seventh of the circa 1992 equipment is installed in each of the years from 1986 through 1992.[7] A proportional increase in labor productivity is assumed to coincide with installation. In the latter time period, the 1992 econometric results are used exclusively, and the marginal costs are increased each year to account for inflation.

2.3 Amortization of F&E

The F&E cost category in the FAA budget includes virtually all of the capital expenditures made for the air traffic control system each year. By definition, capital assets are those which

Table 2.2

COMPARISON OF 1984 AND 1992 OPERATING SITE COSTS

(1986 Dollars)

Marginal Costs	ARTCCs (Handles) 1984	ARTCCs (Handles) 1992	FSSs (Services) 1984	FSSs (Services) 1992	TRACONs (TSOs)* 1984	TRACONs (TSOs)* 1992	Towers (Operations) 1984	Towers (Operations) 1992
- Air Carrier	$14.42	$10.86	$6.69	$4.27	$13.25	$12.55	$8.19	$8.48
- Commuters	$14.42	$10.86	$6.69	$4.27	$13.25	$12.55	$1.93	$1.75
- General Aviation	$13.07	$10.86	$6.69	$4.27	$3.56	$4.72	$1.49	$1.16
- Military	$22.05	$17.29	$6.69	$4.27	$13.25	$12.55	$4.61	$3.05
Joint Costs Per Site	$4,225,062	$5,865,511	$93,066	$477,317	$880,073	$1,308,847	$400,155**	$519,151**
R-Squared	.896	.872	.929	.897	.867	.804	.555	.763

* TSO's equal operations, seconds and overs at TRACON's.

** Level 1 Tower joint costs are $85,133 lower in 1984 and $252,713 lower in 1992.

are not fully consumed by users in a single year. It is desirable to identify how much capital is consumed in a year by each user group in order to evaluate both the varying consumption patterns exhibited by users over time, and the impact of F&E expenditure patterns on user group consumption.

In the present study, future users will be allocated the costs of capital projects as they use them. This is a departure from traditional financial reporting, which is typified by historic depreciation schedules. The approach proposed here is more consistent with the problem faced by the FAA: to account for the consumption of capital in such a way that it can be replaced as it wears out.

It is important to focus on two key components of capital consumption: depreciation and the cost of capital. The former represents the value of capital consumed in a particular time period. Depreciation should be valued to reflect the replacement cost the asset. If an existing asset put in place in year one must be replaced in year three, the cost of that replacement would be affected by both technological change and by the rate of inflation. If replacement costs are not considered, insufficient funds may be set aside to replace the capital as it wears out.

The cost of capital represents the opportunity cost of employing the capital in FAA facilities instead of employing it elsewhere. The time value of money embedded in a capital project is a real cost since there are alternative uses of those funds. Therefore, capital consumption should include not only depreciation, but also the cost of capital.

Finally, since user taxes will be based in part upon the amortization schedule to be developed in this study, it is desirable that the pattern of payments made for recovery be relatively even. It would be difficult to administer taxes which vary year-to-year.

In order to accommodate these concerns, the following amortization procedures were employed in this study.

- o Step 1: Projected future F&E expenditures were amortized in the future.
- o Step 2: The resulting yearly allocations were discounted back to the present time.
- o Step 3: A "mortgage" payment schedule was derived in order to make the annual F&E allocations even.

The effect of this procedure is to recognize the future consumption patterns of F&E, and to take specifically into account the replacement costs of capital, and the cost of capital. In order to allow for an even tax schedule over time, the amortization schedules are discounted back to the present time, and then an even schedule of F&E allocations is derived.

The key assumptions in this analysis are shown below in Table 2.3.

Table 2.3

KEY COMPONENTS OF AMORTIZATION ANALYSIS

Amortization Schedule	13 years
Cost of Capital	10 percent
Replacement Costs	FAA Future F&E Projections
"Mortgage" Rate	10 percent
Duration of Mortgage	1986-1997

The amortization schedule selected was 13 years. This is the approximate average useful life of FAA airway facilities and equipment, as evidenced by expenditure patterns over time.[8] The cost of capital utilized in the analysis is 10 percent, which is the standard OMB discount rate. Replacement costs are based on projected FAA F&E budgets. The mortgage rate of interest is 10 percent, which was selected in order to be equal to the OMB discount rate, which is the opportunity cost of money to the government. The duration of the mortgage was for the period 1986 through 1997--the period of time over which the amortization technique is employed.

Details of the amortization procedure can be found in Appendix A of this volume. The discussion now turns to specific results for major FAA cost categories over the period 1985 through 1997.

SECTION 3.0

REVIEW OF RESULTS

This section of the report briefly reviews the changes in the allocation of major FAA budget categories and in the allocations to users over time. The purpose of this discussion is two-fold. First, user groups consume different amounts of the services produced by FAA cost centers. Examining these differences provides additional insight into the allocation of all FAA costs to user groups. Second, there are some changes in the distribution of costs among user groups forecast for the future. These changes are highlighted in the discussion below.

3.1 Comparison of 1985 and 1997 Allocations

The allocations for the major cost categories for 1985 and 1997 are shown in Table 3.1. Costs are allocated in each category to air carriers, general aviation, and the public sector. In those cases where ranges of results are shown, the allocations depend upon whether regulatory costs are allocated to users, or to the public sector. Air carrier and general aviation allocations are higher when regulatory costs are allocated to users; public sector allocations are higher when regulatory costs are allocated to the public sector.

One trend is apparent in the table. The public sector share of costs is declining over time. As noted in Section 1.0, this

occurs because military operations are forecast to remain almost constant in the future, while general aviation and air carrier operations will increase. The result is a relative decline in the costs attributable to the military, and therefore to the public sector.

What follows is a brief discussion of each of the major cost categories.

- o ARTCCs: The majority of these costs are attributed to air carriers who are the most intensive users of ARTCC facilities. Over time, the public sector shares decline, with the remainder being split approximately equally between air carriers and general aviation.
- o FSSs: The major beneficiaries of FSS services are general aviation users who are allocated the vast majority of these costs. Over time, air carriers' shares remain relatively constant. General aviation utilization of FSS services is forecast to grow in the future with the result that its share increases directly with the decline of the public sector's share.
- o Towers: The majority of tower costs are attributable to general aviation in both 1985 and 1997. The decline in the public sector's share is approximately evenly split between air carriers and general aviation.
- o TRACONs: The majority of TRACON costs are attributable to air carriers. By 1997, there is forecast to be a relative increase in the cost of serving general aviation at TRACON facilities, and an increase in general aviation activity at these

Table 3.1

ALLOCATION OF MAJOR FAA COST CENTERS
1985 and 1997

	1985			1997		
	Air Carrier	GA	Public Sector	Air Carrier	GA	Public Sector
O&M						
o ARTCCs	53.6%	24.0%	22.4%	57.0%	26.3%	16.7%
o FSSs	10.9	76.5	12.7	10.8	79.5	9.7
o Towers	17.3	65.9	16.8	20.8	67.9	11.3
o TRACONs	62.9	20.9	16.2	61.9	28.1	10.0
o NAVAID Maintenance	52.8	26.9	20.4	56.6	29.3	14.1
o Regulations	0-62.4	0-31.7	5.9—100.0	0-63.6	0-32.0	4.4-100
o Indirect Costs	46.8-51.3	27.3-29.1	19.6-25.9	50.1-54.9	29.1-31.1	13.9-20.8
F&E	71.3	16.3	12.4	78.6	13.7	7.7
R&D	83.7-88.1	5.1-7.5	4.4-11.3	70.8-75.6	14.8-17.3	7.1-14.4
Airport Grants	65.6	33.0	1.5	66.0	32.8	1.2

facilities. The result of these two trends is an increase in general aviation's share of TRACON costs, while the shares of both air carriers and the public sector users decline.

- o NAVAID Maintenance: The majority of these maintenance costs are attributable to air carriers. As the public sector's share declines over time, the shares of both air carriers and general aviation increase about equally.
- o Regulations: In the case where regulatory costs are allocated to users, the majority is attributable to air carriers. There is only a modest decline in the public sector's share over time which is split about equally between air carriers and general aviation. Under the scenario when regulatory costs are deemed to be in the public interest, the total budgets in both 1985 and 1997 are allocated to the public sector.
- o Indirect Costs: Indirect costs are allocated to other cost categories based upon allocation statistics, and then to users as a joint cost. The changes shown in the table are due to the expected constancy of military operations over the time period.
- o F&E: The key distinction between 1985 and 1997 results s that future F&E is amortized, while the 1985 results are not. This factor together with the expected decline in the public sector's share by 1997 results in a large increase in air carrier share of F&E in 1997. General aviation's share also declines by 1997.

- o R&D: The results shown in the table are due to the changes in the composition of R&D over time. Most near-term R&D projects are attributable to the air carriers. In the long run, however, a greater share is attributable to general aviation, and to the public sector (despite the expected decline in military operations).
- o Airport Grants: The allocations for airport grants are relatively constant over time. This is expected because the distribution of grants is assumed to be constant over time.

While reviewing the results in Table 3.1, it should be borne in mind that four of the cost categories account for most of the FAA budget: ARTCCs, TRACONs, F&E, and Airport Grants. The relative stability in these budgets accounts for the stability of the shares among the user groups over time.

3.2 Detailed User Allocations for 1985, 1992 and 1997

Allocations were made to ten user groups in the cost allocation study. In addition to the public sector costs attributable to the use of the airport and airway system by civil government and military users, some costs were also allocated to the public interest. These latter costs are also allocated to the public sector in the study. In this section, the allocations to the ten user groups and the public interest are shown for three years: 1985, 1992, and 1997.

The presentation is made through a series of bar charts.

Separate charts are presented for each of the three major user categories: air carriers, general aviation, and the public sector. Also shown with these charts are the total allocation to the major user categories, presented in the form of pie charts.

Two sets of charts are needed for each major user category. In all cases, the first chart pertains to the case where regulatory costs are allocated to users, while the second chart pertains to the scenario when regulatory costs are allocated to the public sector.

What follows is a discussion of the trends in the allocations to user groups over time.

3.2.1 Air Carriers

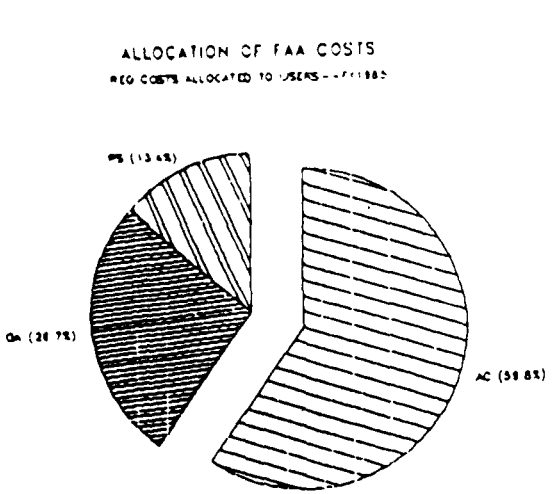
There are four air carrier user groups included in this study:

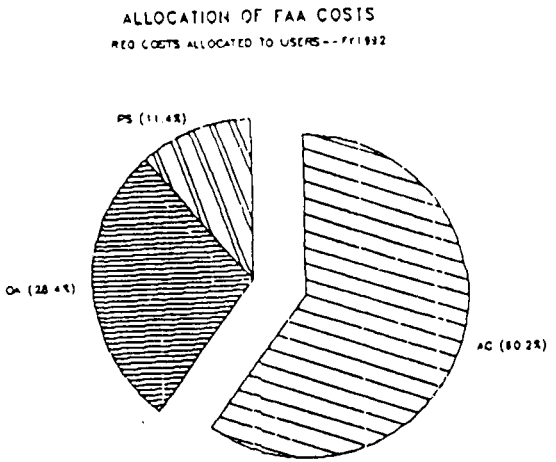
- AC-D: domestic air carriers,
- AC-I: international air carriers,
- AC-F: freight air carriers,
- COM: commuters.

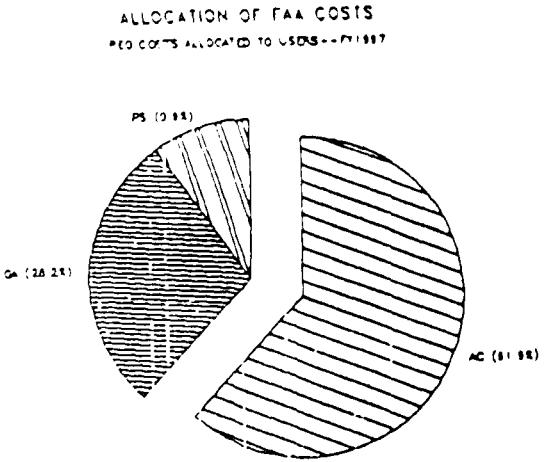
The allocations for the three years of interest are shown in Figures 3.1 and 3.2. It is apparent in both charts that there is a substantial increase in the allocation of FAA costs to commuters over time. This trend is consistent with the expected rapid growth in commuter operations in the future, and is part of a longer secular trend in commuter growth which began with the deregulation of the airline industry.

Another obvious result in both Figures 3.1 and 3.2 is the dominance of total FAA costs attributable to domestic air carriers. This result is expected because these carriers are the

Figure 3.1


ALLOCATION OF FAA COSTS
AC (59.8%)


ALLOCATION OF FAA COSTS
AC (60.2%)


ALLOCATION OF FAA COSTS
AC (61.8%)

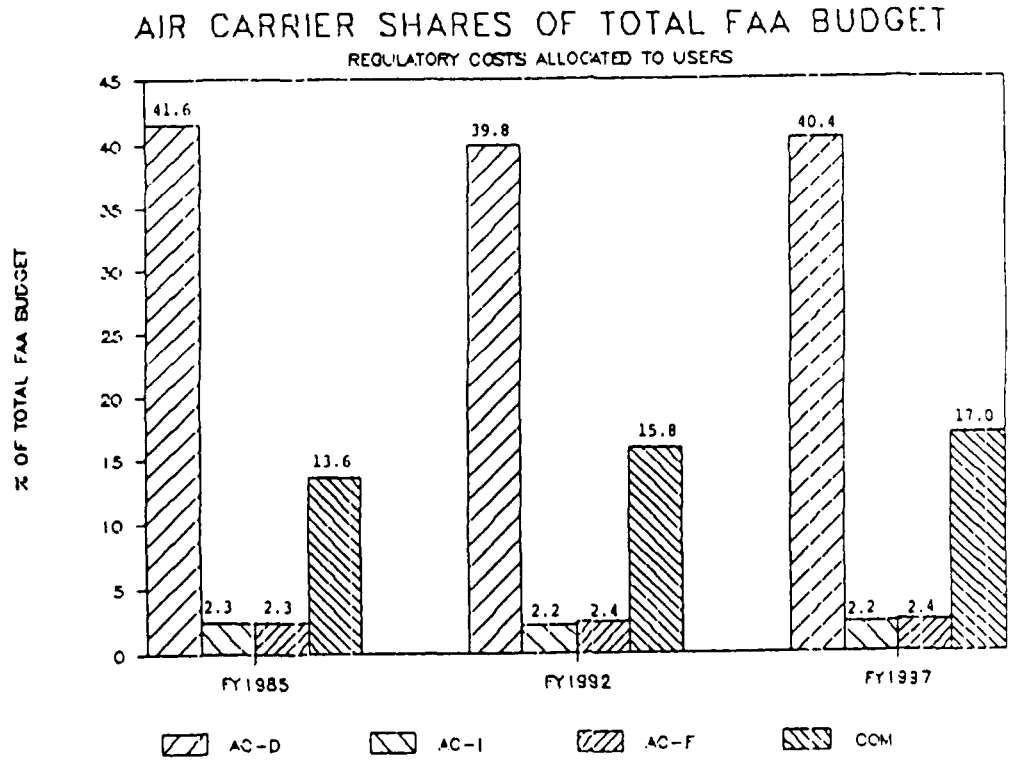
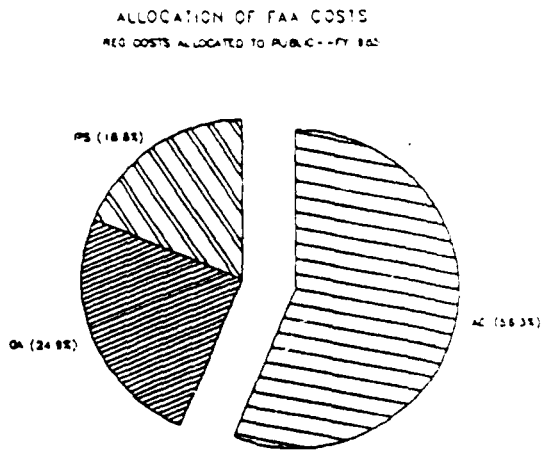
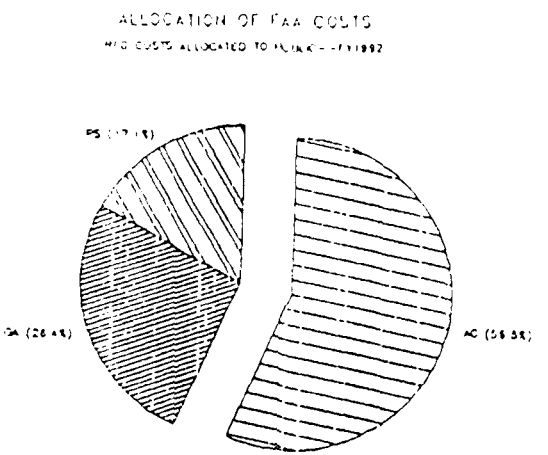
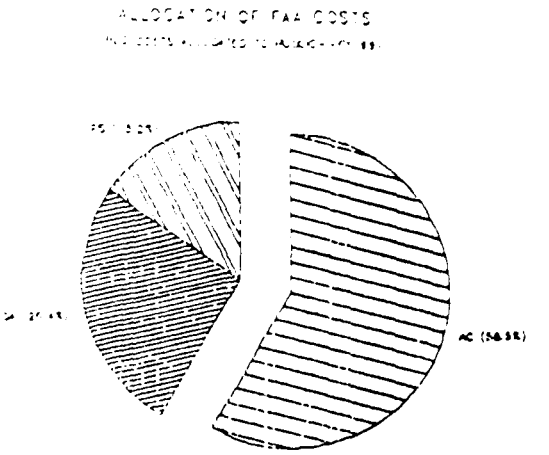
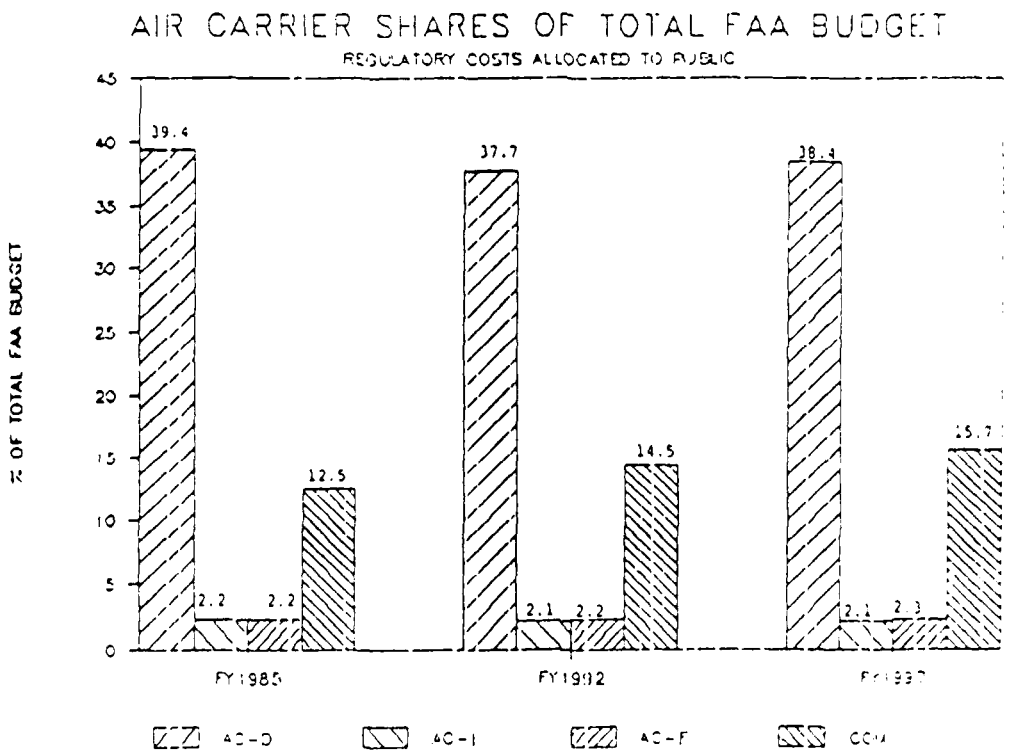

AIR CARRIER SHARES OF TOTAL FAA BUDGET
REGULATORY COSTS ALLOCATED TO USERS
% OF TOTAL FAA BUDGET
45
40
35
30
25
20
15
10
5
0
41.6
2.3
2.3
13.6
39.8
2.2
2.4
15.8
40.4
2.2
2.4
17.0
FY1985
FY1992
FY1997
AC-D
AC-I
AC-F
COM

Figure 3.2


ALLOCATION OF FAA COSTS
AC (56.3%)


ALLOCATION OF FAA COSTS
AC (56.5%)


AC (56.5%)


AIR CARRIER SHARES OF TOTAL FAA BUDGET
REGULATORY COSTS ALLOCATED TO PUBLIC
% OF TOTAL FAA BUDGET
45
40
35
30
25
20
15
10
5
0
39.4
2.2
2.2
12.5
37.7
2.1
2.2
14.5
38.4
2.1
2.3
FY1985
FY1992
AC-O
AC-I
AC-F
COM

largest operators at ARTCCs and TRACONs--the two largest operating site cost centers. In addition, they are the chief beneficiaries of substantial portions of the F&E, R&D, and airport budgets. It is also interesting to note that the allocations for domestic air carriers remain relatively constant over time despite more rapid growth in operations by other user groups.

The allocations for international air carriers and freight air carriers are approximately equal, and remain approximately constant over time. Both groups exhibit relatively low levels of operations at FAA facilities. In addition, unlike domestic air carriers and commuter airlines, the avoidable costs of F&E, R&D, and airport projects are far less likely to be attributable to these two user groups.

As a group, air carriers account for between 60 and 62 percent of total FAA costs over the 1985 through 1997 time period under the assumption that regulatory costs are allocated to users. If the alternative scenario where regulatory costs are allocated to the public is examined, air carriers as a group account for between 56 and 58.5 percent of total FAA costs.

3.2.2 General Aviation

There are four user groups in the general aviation category:

- AT: air taxis
- GA-P: general aviation piston operators
- GA-T: general aviation turboprop or turbo-jet operators
- Rotor: operators of rotorcraft.

As a group, general aviation operators account for between 26.5 and 28 percent of total FAA costs under the scenario that regulatory costs are allocated to users. If, instead, regulatory costs are allocated to the public sector, general aviation as a group accounts for between 25 and 26.5 percent of FAA costs.

The results for the individual general aviation user groups for 1985, 1992, and 1997 are shown in Figures 3.3 and 3.4. It is obvious that more than half of general aviation's share of the total FAA budget is attributable to piston operators. This result is expected because piston operators account for the vast majority of total operations by general aviation users. The share of piston operators increases over time primarily because of the expected increase in operations by this user group.

Operators of turboprop and turbo-jet aircraft also account for an appreciable share of the total FAA budget. The more detailed allocations shown in Section 4.0 indicate that this user group's share of ATC operation costs will grow over time, even though its total share will fall slightly.

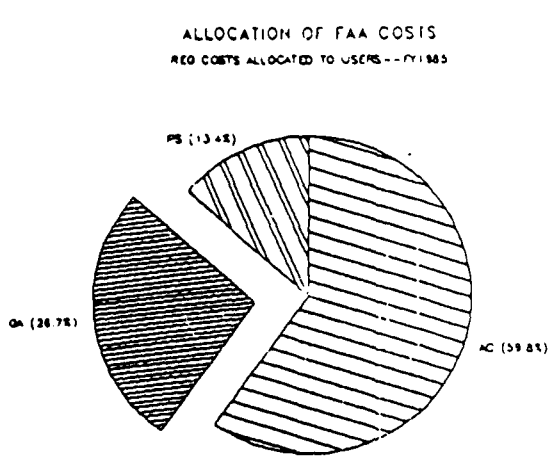
The share of FAA costs attributable to air taxi operators is expected to increase over time due to the relatively high growth rate in operations expected for this user group.

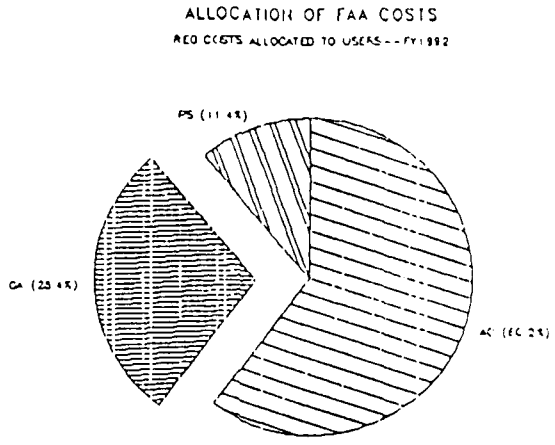
The relatively low share for operators of rotorcraft is due primarily to the fact that these aircraft use relatively modest amounts of FAA resources per flight. This is expected to continue in the future.[9]

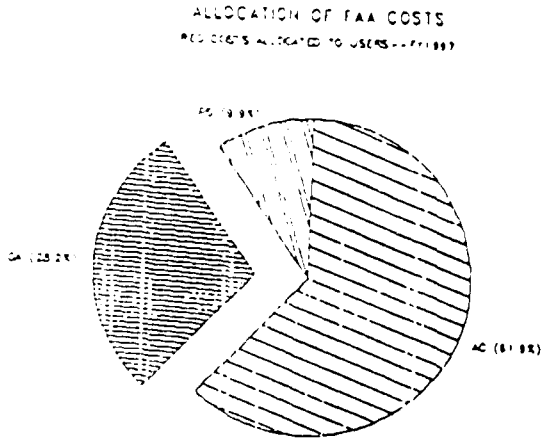
3.2.3 Public Sector

The costs attributable to the public sector are divided into three categories:

Figure 3.3


ALLOCATION OF FAA COSTS
REG COSTS ALLOCATED TO USERS--FY1985
PS (13.4%)
GA (26.7%)
AC (59.8%)


ALLOCATION OF FAA COSTS
REG COSTS ALLOCATED TO USERS--FY1992
PS (11.4%)
GA (25.4%)


ALLOCATION OF FAA COSTS

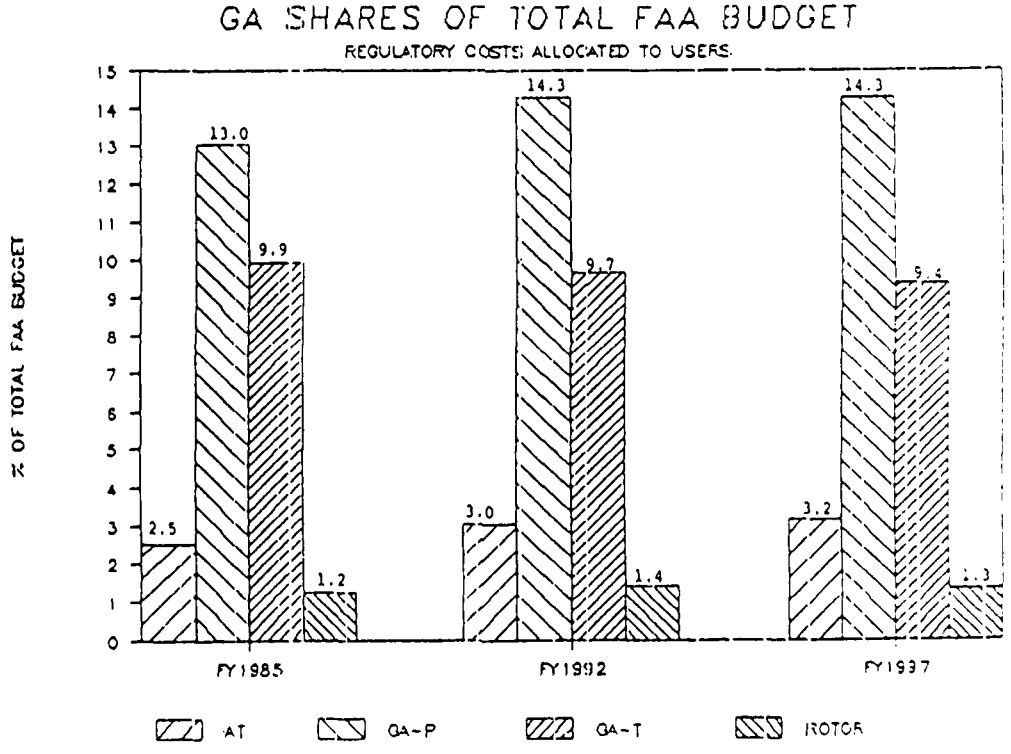
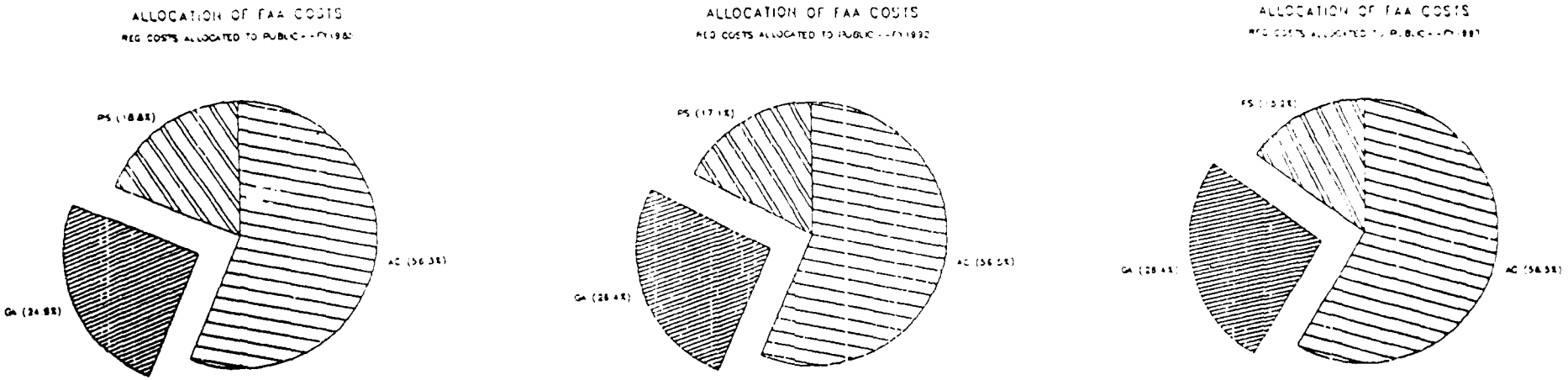
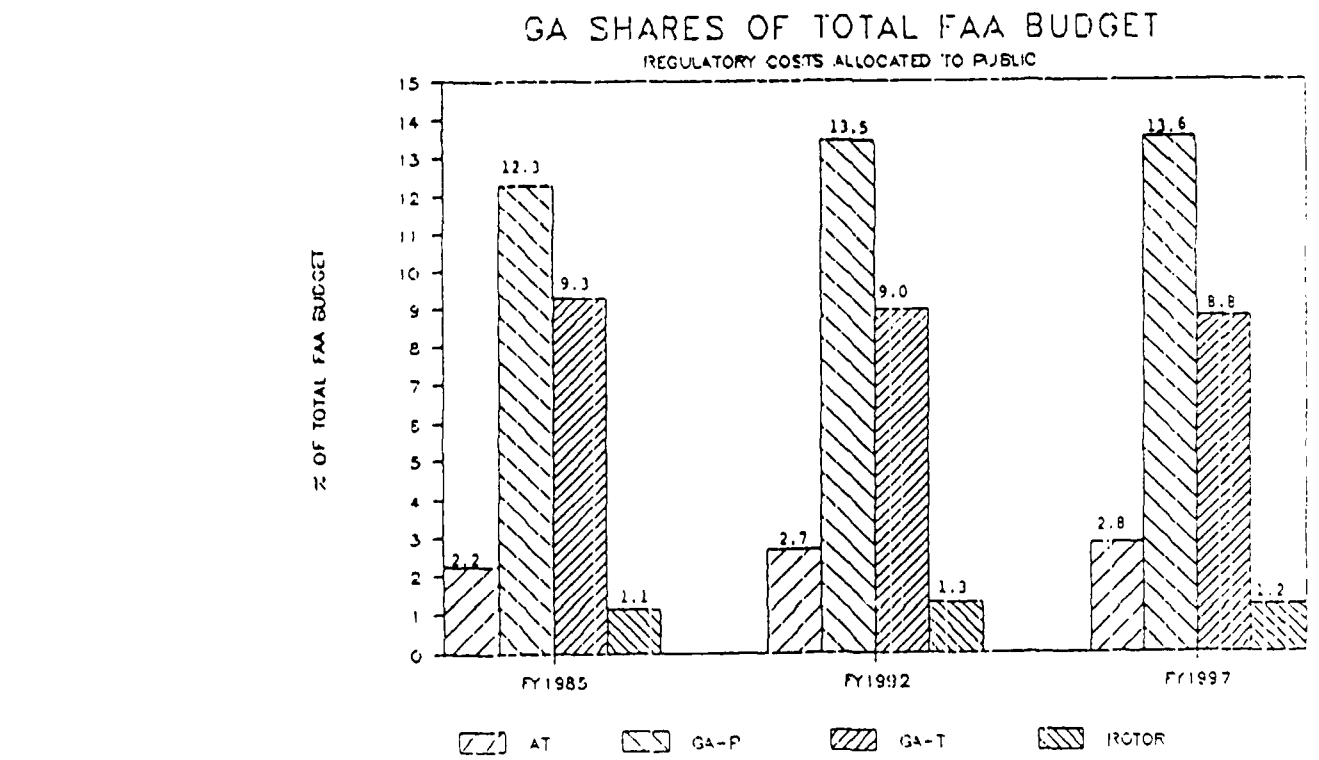

GA SHARES OF TOTAL FAA BUDGET
REGULATORY COSTS ALLOCATED TO USERS
% OF TOTAL FAA BUDGET
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
2.5
13.0
9.9
1.2
3.0
14.3
9.7
1.4
3.2
14.3
9.4
1.3
FY1985
FY1992
FY1997
AT
GA-P
GA-T
ROTOR

Figure 3.4


ALLOCATION OF FAA COSTS
ALLOCATION OF FAA COSTS
ALLOCATION OF FAA COSTS


GA SHARES OF TOTAL FAA BUDGET
REGULATORY COSTS ALLOCATED TO PUBLIC
% OF TOTAL FAA BUDGET
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
12.3
9.3
1.1
2.2
13.5
9.0
1.3
2.7
13.6
8.8
2.8
FY1985
FY1992
FY1997
AT
GA-P
GA-T
ROTOR

- o GOVT: operators of civil government aircraft,
- o MIL: operators of military aircraft,
- o PI: costs attributable to the public interest.

Under the scenario where regulatory costs are allocated to users, the public sector accounts for approximately 13.5 percent of total FAA costs in 1985, but only 9.3 percent in 1997. The decline is almost wholly attributable to the expected constancy of military operations, while the operations of other user groups are expected to increase.

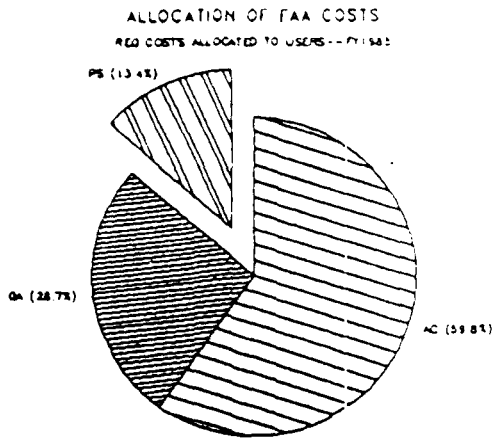
The same trend is evident when regulatory costs are allocated to the public sector. In this case, the public sector's share in 1985 is 18.7 percent, but declines to 15.2 percent in 1997.

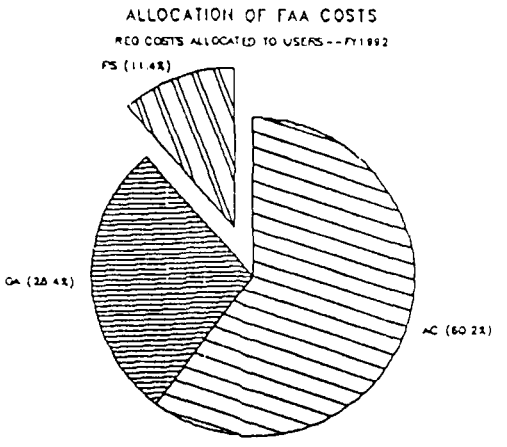
Detailed results are shown in Figures 3.5 and 3.6. It is obvious in both charts that military operations dominate the public sector allocation. It is the expected relative decline in costs attributable to the military that results in the decline in the public sector's share over time.

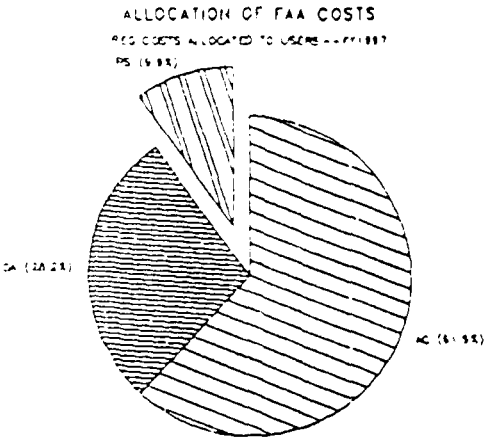
The share attributable to civil government aviation is expected to remain constant over time. This is consistent with the assumption that civil government fleets and operations will grow in proportion with those of other civilian operators.

Finally, the share of the FAA budget attributable to the public interest is relatively constant under the scenario where regulatory costs are allocated to users. However, the public interest share does vary somewhat in the scenario where regulatory costs are allocated to the public. This is due to the variance in regulatory costs over time.

Figure 3.5


ALLOCATION OF FAA COSTS
PS (13.4%)
GA (28.7%)
AC (59.8%)


ALLOCATION OF FAA COSTS
PS (11.4%)
GA (28.4%)
AC (60.2%)


ALLOCATION OF FAA COSTS

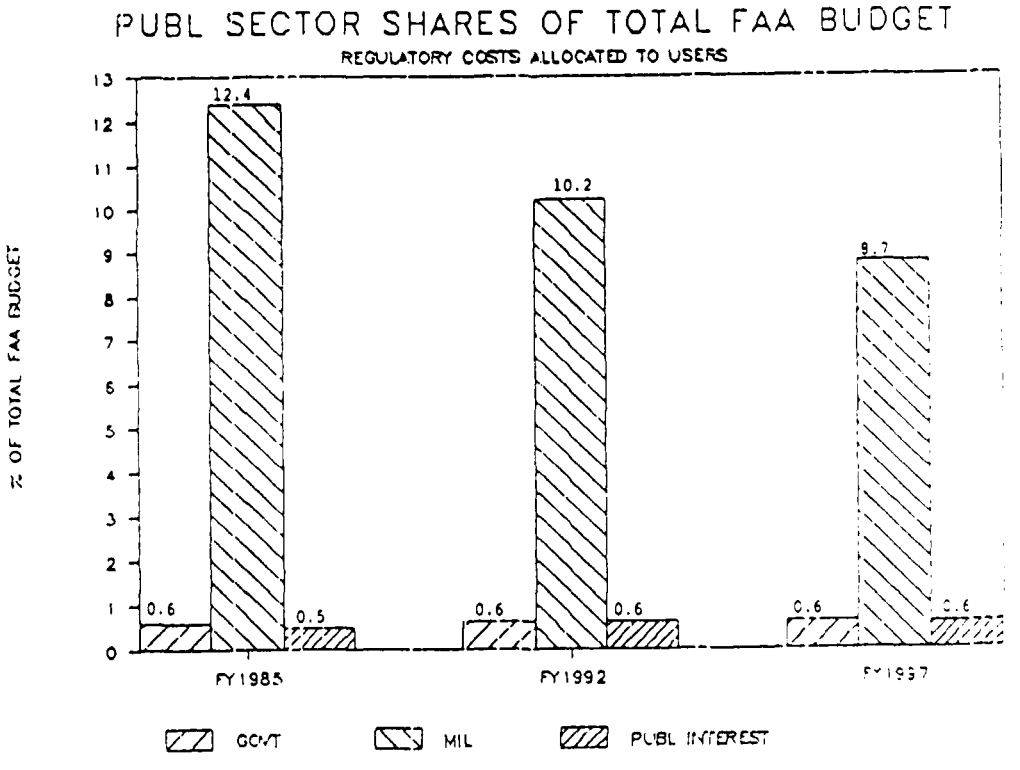
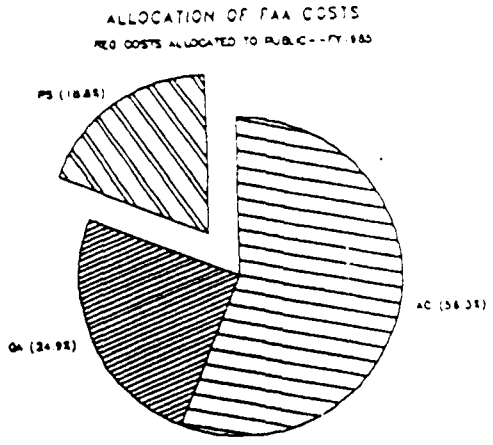
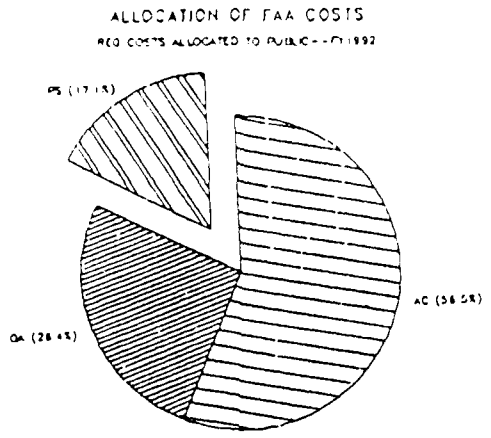
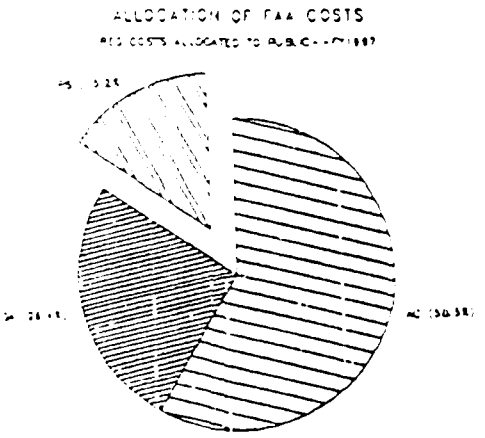
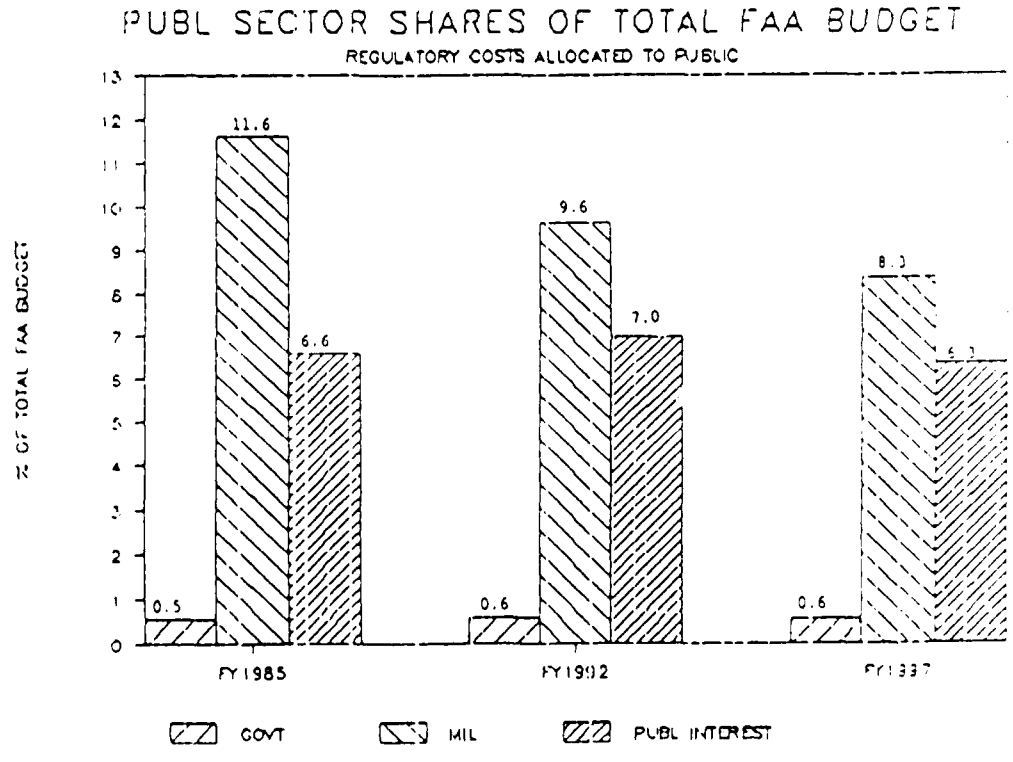

PUBL SECTOR SHARES OF TOTAL FAA BUDGET
REGULATORY COSTS ALLOCATED TO USERS
% OF TOTAL FAA BUDGET
13
12
11
10
9
8
7
6
5
4
3
2
1
0
12.4
10.2
9.7
0.6
0.5
0.6
0.6
0.6
FY1985
FY1992
FY1997
GOVT
MIL
PUBL INTEREST

Figure 3.6


ALLOCATION OF FAA COSTS
AC (56.5%)
OA (24.9%)


ALLOCATION OF FAA COSTS
AC (56.5%)
OA (26.4%)


ALLOCATION OF FAA COSTS

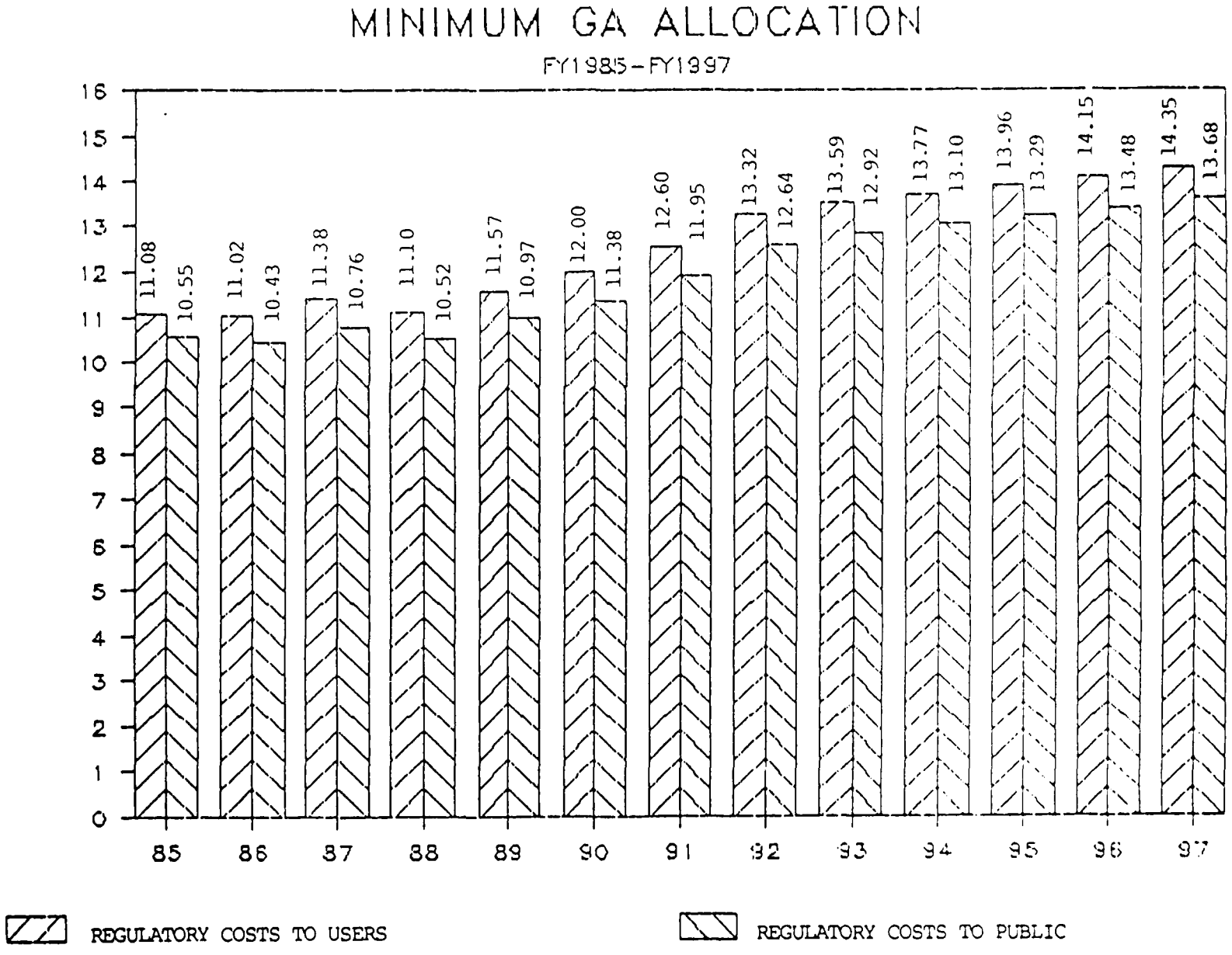

PUBL SECTOR SHARES OF TOTAL FAA BUDGET
REGULATORY COSTS ALLOCATED TO PUBLIC
% OF TOTAL FAA BUDGET
0.5
11.6
6.6
0.6
9.6
7.0
0.6
8.3
FY1985
FY1992
GOVT
MIL
PUBL INTEREST

3.3 Minimum GA Allocations

Shown in Figure 3.7 are the minimum general aviation allocations for the period 1985 through 1997. Section 3 of Volume 1 describes in detail the methodology used to develop the minimum general aviation allocation. Since this method relies heavily on FAA establishment criteria as they stood in 1985, it cannot be repeated exactly for future years. As traffic grows, the criteria are bound to change, but these changes cannot be predicted. Thus, the sites identified in the 1985 allocation are assumed to comprise the minimum system in all future years. However, the activity levels and marginal costs are assumed to change as described earlier in this volume. Consequently, the minimum system allocations for 1986-1997 are generated by applying projected activity levels and marginal costs to the sites identified in the base-year analysis.

As the table shows, the minimum general aviation allocation is projected to increase from approximately 11 percent to approximately 14 percent of the total budget over the period 1985-1997. This increase is attributable primarily to the relatively high growth rate in general aviation operations as projected by the FAA.

Figure 3.7


MINIMUM GA ALLOCATION
FY1985-FY1997
% TOTAL BUDGET
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
11.08
10.55
11.02
10.43
11.38
10.76
11.10
10.52
11.57
10.97
12.00
11.38
12.60
11.95
13.32
12.64
13.59
12.92
13.77
13.10
13.96
13.29
14.15
13.48
14.35
13.68
85
86
87
88
89
90
91
92
93
94
95
96
97
REGULATORY COSTS TO USERS
REGULATORY COSTS TO PUBLIC

SECTION 4.0

DETAILED RESULTS

This section of the report provides detailed information on the allocations to all users groups for the period 1986 through 1997. The allocations of both direct and indirect costs for all major cost categories are included for each user group.

For each year, there are three tables. The first shows the full cost allocation assuming that regulatory costs are allocated to users. The second shows the full cost allocation assuming that regulatory costs are allocated to the public sector. The third table presents the results of the minimum general aviation allocation for each year.

The tables in this section provide a more detailed picture of the year-by-year changes which result in the broad trends depicted in Figures 1.1 - 1.3. The percentage of the FAA budget devoted to air carriers rises slightly, as does the share of general aviation. However, FAA expenditures allocated to the public sector fall. These trends can be identified under either of the alternative assumptions as to the allocation of regulatory costs.

1986

TABLE A-1

1986 ALLOCATION
REGULATORY COSTS ALLOCATED TO USERS

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INTL	AIR CARRIER FREIGHT	COMMUTER	AIR TAXI	GEN AVIATION PISTON	GEN AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	$25,391,088	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,685,851	$19,705,228
Navaid Maintenance	$345,464,695	$122,760,235	$6,836,477	$8,672,393	$45,487,697	$12,278,279	$39,184,624	$37,133,147	$5,669,556	$2,613,582	$65,486,783	$0
Safety Regulation	$138,797,986	$48,317,883	$2,416,164	$3,493,888	$32,459,268	$8,887,311	$17,686,719	$15,195,898	$2,278,185	$1,849,176	$7,815,242	$0
ARTCCs	$589,981,343	$239,846,779	$13,839,826	$6,369,614	$49,864,458	$15,265,538	$36,677,861	$91,182,339	$0	$3,240,849	$126,895,688	$0
Towers	$119,887,886	$8,781,428	$631,618	$904,662	$11,888,856	$9,962,772	$44,584,858	$14,972,789	$8,928,634	$2,554,561	$16,685,775	$0
TRACONs	$565,869,243	$212,969,748	$9,267,275	$16,388,511	$113,323,935	$11,903,813	$98,199,538	$14,657,393	$8,289,983	$2,365,884	$85,792,853	$0
FSSs	$240,664,416	$10,446,818	$462,329	$812,548	$14,383,943	$14,784,288	$136,791,773	$20,697,352	$10,627,437	$3,157,175	$26,578,769	$0
TOTAL OPS BUDGET	$2,024,395,769	$642,263,967	$31,915,710	$46,852,726	$265,648,181	$72,121,199	$367,843,773	$193,838,838	$35,723,717	$14,959,446	$333,260,962	$19,705,228
F&E	$1,289,665,572	$679,496,928	$34,562,658	$48,616,733	$229,557,476	$20,963,324	$58,868,834	$68,891,187	$5,736,947	$4,461,148	$127,269,181	$0
R&D	$198,888,888	$118,898,858	$5,578,827	$7,998,138	$39,863,847	$1,861,958	$5,732,271	$7,852,287	$629,473	$356,833	$9,987,123	$0
AIP GRANTS	$885,888,888	$456,964,266	$34,817,763	$629,881	$88,781,895	$5,874,348	$157,146,549	$123,285,589	$6,486,121	$3,788,743	$8,833,714	$0
TOTAL DIRECT COSTS	$4,389,861,341	$1,889,624,844	$186,894,158	$124,129,472	$623,842,599	$121,828,822	$579,982,687	$413,867,821	$48,586,258	$23,637,362	$479,370,980	$19,705,228
INDIRECT COSTS												
Public Interest	$7,586,292	$0	$0	$0	$0	$0	$0	$0	$0	$0	$814,184	$6,692,189
Navaid Maintenance	$161,461,919	$56,627,196	$2,838,676	$4,894,684	$20,992,957	$5,699,899	$15,768,311	$17,235,768	$2,648,871	$1,213,868	$30,359,288	$0
Safety Regulation	$49,763,723	$18,869,983	$983,517	$1,386,424	$10,499,733	$2,712,257	$6,876,682	$5,158,437	$776,232	$357,183	$3,911,557	$0
ARTCCs	$183,915,788	$77,899,427	$4,285,717	$5,279,669	$15,824,782	$4,923,573	$5,459,315	$29,488,914	$0	$1,844,995	$48,669,468	$0
Towers	$35,797,578	$2,865,192	$286,884	$314,749	$3,589,347	$3,257,168	$11,488,884	$4,885,279	$2,913,225	$833,586	$5,444,216	$0
TRACONs	$169,979,975	$69,536,245	$3,825,836	$5,348,362	$37,881,129	$3,886,424	$14,924,863	$4,785,751	$2,688,622	$778,722	$28,812,821	$0
FSSs	$71,499,819	$4,686,313	$283,818	$358,285	$6,385,832	$6,517,598	$26,588,898	$9,124,348	$4,685,868	$1,391,827	$11,717,137	$0
TOTAL OPS BUDGET	$679,924,278	$228,884,276	$11,375,645	$16,782,893	$94,213,781	$26,996,118	$84,386,872	$78,598,479	$13,695,818	$5,619,319	$128,987,783	$6,692,189
F&E	$12,673,899	$4,484,438	$228,168	$318,482	$1,632,828	$443,273	$1,652,254	$1,348,587	$285,485	$94,353	$2,361,327	$0
R&D	$8,577,496	$2,988,245	$148,976	$215,588	$1,184,843	$299,939	$1,128,272	$987,185	$138,987	$62,844	$1,597,785	$0
AIP GRANTS	$28,728,141	$6,387,418	$465,367	$36,182	$3,183,337	$222,231	$5,424,841	$4,359,816	$ 87,264	$25,519	$388,394	$0
TOTAL INDIRECT COSTS	$721,895,814	$242,576,361	$12,218,156	$17,272,178	$100,134,768	$27,961,553	$92,584,239	$ 87,197,968	$14,187,256	$5,661,825	$135,275,269	$6,692,189
GRAND TOTAL	$5,110,956,156	$2,132,200,445	$198,384,386	$141,401,650	$723,977,359	$148,962,375	$672,486,926	$498,265,889	$ 773,514	$29,299,187	$614,645,189	$26,397,417
USER GROUP PERCENTS	100.00%	41.72%	2.33%	2.36%	14.17%	2.92%	13.16%	9.59%	.28%	8.56%	12.03%	0.52%

Table 4.2

1986 ALLOCATION

REGULATORY COSTS ALLOCATED TO PUBLIC

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMMUTER	AIR TAXI	GEN AVIATION PISTON	GEN AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	$25,391,880	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,685,851	$19,705,228
Navaid Maintenance	$345,461,654	$122,698,128	$6,098,477	$8,872,241	$45,486,915	$12,278,279	$39,184,624	$37,133,147	$5,689,558	$2,613,582	$65,486,783	$0
Safety Regulation	$282,365,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$282,365,000
ARTCCs	$589,981,343	$239,846,779	$13,839,826	$16,369,614	$49,864,490	$15,265,538	$36,677,061	$91,182,339	$0	$3,248,809	$126,895,688	$0
Towers	$119,087,866	$8,781,428	$631,618	$964,662	$11,000,856	$9,982,772	$44,584,858	$14,972,709	$8,928,634	$2,554,581	$16,685,775	$0
TRACONs	$565,889,243	$212,969,748	$9,267,275	$16,380,511	$113,323,935	$11,983,813	$90,199,538	$14,657,393	$8,289,983	$2,385,884	$85,792,853	$0
FSSs	$248,664,416	$18,448,818	$462,329	$812,540	$14,383,943	$14,784,288	$138,791,773	$20,697,352	$18,627,437	$3,157,175	$26,578,769	$0
TOTAL OPS BUDGET	$2,167,959,823	$593,944,876	$29,499,526	$43,399,568	$233,188,140	$64,213,888	$349,357,854	$178,642,948	$33,455,612	$13,958,270	$326,245,728	$302,070,228
F&E	$1,289,665,572	$679,496,920	$34,582,658	$48,616,733	$229,557,476	$28,983,324	$50,868,894	$88,891,187	$5,726,947	$4,461,148	$127,289,181	$0
R&D	$190,000,000	$185,258,591	$5,296,882	$7,582,285	$37,772,878	$1,294,389	$3,653,384	$5,335,547	$376,433	$275,286	$6,963,237	$16,192,847
AIP GRANTS	$885,000,000	$456,964,286	$34,817,763	$629,881	$88,781,895	$5,874,348	$157,146,549	$123,265,509	$6,486,181	$2,782,743	$8,833,714	$0
TOTAL DIRECT COSTS	$4,532,625,395	$1,835,664,674	$103,396,821	$100,228,467	$589,291,588	$91,565,861	$568,217,881	$396,155,183	$46,045,114	$22,467,359	$469,331,772	$318,262,275
INDIRECT COSTS												
Public Interest	$5,582,153	$0	$0	$0	$0	$0	$0	$0	$0	$0	$685,419	$4,976,734
Navaid Maintenance	$120,642,883	$42,218,364	$2,110,088	$3,052,218	$15,648,317	$4,248,154	$15,823,336	$12,847,673	$1,968,527	$904,244	$22,638,858	$0
Safety Regulation	$43,884,444	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$43,884,444
ARTCCs	$151,782,535	$63,539,749	$3,466,847	$4,351,120	$13,041,578	$4,857,651	$4,631,675	$24,236,691	$0	$861,289	$33,516,822	$0
Towers	$29,092,623	$2,257,293	$162,368	$247,978	$2,827,886	$2,566,184	$9,941,377	$3,848,784	$2,295,134	$656,663	$4,289,123	$0
TRACONs	$138,142,435	$56,316,141	$2,450,578	$4,331,541	$29,966,542	$3,147,544	$12,566,118	$3,875,893	$2,178,987	$630,673	$22,686,427	$0
FSSs	$55,862,766	$3,531,722	$156,268	$274,641	$4,834,766	$4,997,123	$21,429,578	$6,995,753	$3,592,898	$1,867,132	$8,983,685	$0
TOTAL OPS BUDGET	$544,989,848	$167,855,268	$8,345,252	$12,257,481	$66,319,082	$19,816,577	$63,592,884	$51,804,793	$10,826,746	$4,119,922	$92,711,536	$48,861,179
F&E	$9,424,518	$3,274,722	$163,697	$236,794	$1,214,812	$329,576	$1,238,447	$996,735	$152,728	$70,152	$1,755,662	$0
R&D	$6,378,768	$2,215,982	$110,772	$160,237	$821,514	$223,822	$833,898	$674,484	$103,345	$47,471	$1,188,044	$0
AIP GRANTS	$19,785,578	$6,867,534	$442,224	$33,815	$3,829,689	$210,933	$5,164,869	$4,150,878	$139,632	$100,313	$365,691	$0
TOTAL INDIRECT COSTS	$580,418,696	$179,413,507	$9,061,945	$12,688,327	$71,384,217	$19,780,107	$70,821,298	$57,626,883	$10,422,444	$4,337,858	$96,020,933	$48,861,179
GRAND TOTAL	$5,113,044,090	$2,015,078,181	$112,457,966	$112,916,794	$660,675,805	$111,345,968	$631,038,378	$453,782,066	$56,467,557	$26,805,217	$565,352,705	$367,123,454
USER GROUP PERCENTS	100.00%	39.41%	2.20%	2.21%	12.92%	2.18%	12.34%	8.87%	1.10%	0.52%	11.06%	7.18%

Table 4.3

MINSYS

1986 MINIMUM GA ALLOCATION

COST CATEGORY	VARIABLE COST	JOINT COST	AIR TAXI	GA-PISTON	GA-TURBO	ROTORCRAFT	TOTAL COST
OPERATIONS OVERHEAD							
GRANT ADMINISTATION	$0	$5,265,851	$642,837	$2,270,249	$2,077,371	$274,594	$5,265,851
AVIATION STANDARDS	$0	$30,020,024	$3,709,741	$12,493,661	$12,232,770	$1,584,653	$30,020,024
TOTAL OVERHEAD	$0	$35,285,875	$4,352,578	$14,763,910	$14,310,140	$1,859,247	$35,285,875
CAPITAL PROJECTS							
BENEFITING GA:							
CS GRANTS	$0	$6,115,114	$0	$688,971	$5,426,143	$0	$6,115,114
GA GRANTS	$0	$79,932,999	$1,798,888	$47,687,089	$30,447,031	$0	$79,932,999
F&E GA PROJECTS	$0	$21,173,786	$2,612,841	$9,448,192	$7,902,004	$1,210,749	$21,173,786
R&D GA PROJECTS	$0	$2,077,073	$252,526	$943,819	$763,712	$117,016	$2,077,073
TOTAL CAPITAL PROJECTS	$0	$109,298,972	$4,664,246	$58,768,070	$44,538,890	$1,327,765	$109,298,972
FLIGHT SERVICE STATIONS	$165,908,379	$27,438,206	$15,765,274	$138,923,811	$28,320,076	$10,337,424	$193,346,585
AIR ROUTE TRAFFIC CONTROL CENTERS	$121,927,571	$0	$12,672,393	$33,561,910	$75,693,268	$0	$121,927,571
TERMINAL NAVIGATION FACILITIES	$0	$8,002,913	$979,359	$3,440,349	$3,164,862	$418,343	$8,002,913
TERMINAL CONTRL FACILITIES:							
TOWERS	$14,274,840	$14,186,212	$2,753,686	$19,114,330	$4,130,129	$2,462,988	$28,461,852
TRACONS	$65,949,795	$1,217,515	$5,264,834	$50,576,466	$6,483,128	$3,631,367	$67,004,788
TOTAL MINIMUM GA ALLOCATION	$368,060,585	$195,429,693	$46,452,371	$319,142,847	$176,640,492	$20,037,853	$563,327,677
FULL GA SHARE OF BUDGET --DOLLARS			$128,982,375	$672,486,926	$490,265,808	$62,773,524	$1,354,508,633
--PERCENTS			2.52%	13.16%	9.59%	1.23%	26.50%
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET			0.91%	6.24%	3.46%	0.39%	11.02%
FULL GA SHARE OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC --DOLLARS			$111,345,968	$631,838,378	$453,782,066	$56,467,557	$1,252,633,970
--PERCENTS			2.18%	12.34%	8.87%	1.10%	24.50%
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC			0.84%	6.00%	3.22%	0.36%	10.43%

1987

Table 4.4

1987 ALLOCATION
REGULATORY COSTS ALLOCATED TO USERS

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMMUTER	AIR TAXI	GENL AVIATION PISTON	GENL AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	$26,832,005	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,728,565	$20,383,440
Navaid Maintenance	$379,685,644	$134,183,690	$6,706,605	$9,705,365	$50,973,545	$13,865,167	$43,226,843	$41,175,279	$6,354,636	$2,988,136	$69,986,980	$0
Safety Regulation	$142,961,843	$49,515,293	$2,475,758	$3,580,592	$33,786,797	$9,241,621	$18,279,713	$15,615,854	$2,357,607	$1,881,866	$7,826,742	$0
ARTCCs	$611,492,616	$247,459,438	$13,498,731	$16,945,782	$52,711,586	$16,549,383	$38,681,851	$95,189,834	$0	$3,382,488	$127,674,564	$0
Towers	$124,645,324	$9,576,725	$688,822	$1,852,829	$11,931,820	$10,584,906	$46,371,814	$15,755,835	$9,395,633	$2,688,195	$16,679,546	$0
TRACONs	$684,289,857	$223,595,391	$9,729,645	$17,197,788	$121,655,887	$13,558,838	$101,666,978	$16,685,534	$9,345,997	$2,715,816	$168,867,679	$0
FSSs	$240,868,773	$10,327,755	$457,890	$883,263	$14,278,953	$14,862,538	$138,947,161	$20,888,863	$10,685,731	$3,174,378	$25,731,841	$0
TOTAL OPS BUDGET	$2,128,495,262	$674,658,293	$33,556,650	$49,284,738	$285,329,628	$78,573,644	$386,573,559	$285,230,397	$38,139,884	$15,949,999	$340,895,917	$20,383,440
F&E	$1,343,698,566	$784,777,841	$35,867,396	$50,434,727	$244,278,683	$22,565,558	$52,534,914	$93,162,885	$6,833,928	$4,682,599	$129,352,925	$0
R&D	$134,500,000	$66,138,451	$3,355,725	$4,741,523	$23,295,684	$2,764,744	$8,288,475	$18,249,831	$931,884	$575,959	$14,158,685	$0
AIP GRANTS	$712,000,000	$367,622,530	$27,367,193	$505,855	$71,632,471	$4,149,542	$126,688,116	$98,920,795	$5,227,149	$3,834,796	$6,931,554	$0
TOTAL DIRECT COSTS	$4,318,685,828	$1,813,197,114	$100,146,964	$104,966,835	$624,536,386	$108,053,488	$574,085,864	$487,563,108	$50,331,166	$24,243,352	$491,339,081	$20,383,440
INDIRECT COSTS												
Public Interest	$6,811,998	$0	$0	$0	$0	$0	$0	$0	$0	$0	$682,059	$6,129,940
Navaid Maintenance	$158,188,421	$55,347,321	$2,766,382	$4,003,213	$21,025,276	$5,719,025	$19,655,385	$16,983,743	$2,620,876	$1,199,531	$28,867,829	$0
Safety Regulation	$45,716,099	$16,526,263	$826,216	$1,195,141	$9,773,139	$2,522,146	$5,612,465	$4,729,497	$717,663	$329,123	$3,484,446	$0
ARTCCs	$169,694,291	$71,007,741	$3,873,420	$4,862,518	$15,125,488	$4,748,796	$5,155,568	$27,314,436	$0	$970,572	$36,635,832	$0
Towers	$33,248,665	$2,714,099	$195,216	$298,151	$3,381,546	$2,977,151	$11,865,583	$4,465,294	$2,662,776	$761,850	$4,727,879	$0
TRACONs	$161,178,463	$64,868,362	$2,822,367	$4,988,717	$35,289,582	$3,938,581	$15,393,482	$4,848,126	$2,711,879	$787,578	$25,546,598	$0
FSSs	$63,469,181	$4,016,530	$177,765	$312,394	$5,550,866	$5,780,137	$24,142,334	$8,092,398	$4,155,758	$1,234,536	$10,007,279	$0
TOTAL OPS BUDGET	$638,299,119	$214,472,316	$10,661,287	$15,668,135	$90,145,017	$25,677,835	$81,824,657	$66,425,486	$12,868,144	$5,283,181	$109,951,122	$6,129,940
F&E	$11,738,215	$4,070,910	$203,467	$294,445	$1,546,453	$420,646	$1,548,819	$1,249,189	$192,771	$88,228	$2,123,289	$0
R&D	$5,397,919	$1,871,285	$93,528	$135,348	$710,861	$193,359	$714,134	$574,218	$88,611	$40,556	$976,017	$0
AIP GRANTS	$18,940,382	$5,825,847	$424,745	$32,867	$2,923,744	$285,722	$4,975,115	$3,982,689	$134,424	$96,188	$339,918	$0
TOTAL INDIRECT COSTS	$674,375,635	$226,240,358	$11,383,027	$16,121,995	$95,326,075	$26,497,563	$88,262,725	$72,231,582	$13,283,951	$5,508,153	$113,390,346	$6,129,940
GRAND TOTAL	$4,993,061,463	$2,039,437,472	$111,529,990	$121,088,830	$719,862,381	$134,551,042	$662,267,789	$479,794,610	$63,615,117	$29,751,505	$604,729,347	$26,433,380
USER GROUP PERCENTS	100.00%	40.85%	2.23%	2.43%	14.42%	2.69%	13.26%	9.61%	1.27%	0.60%	12.11%	0.53%

Table 4.5

1987 ALLOCATION
REGULATORY COSTS ALLOCATED TO PUBLIC

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMMUTER	AIR TAXI	GENL AVIATION PISTON	GENL AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	$26,032,005	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,728,565	$20,303,440
Navaid Maintenance	$379,085,644	$134,183,698	$6,706,685	$9,785,365	$50,973,545	$13,865,167	$43,226,843	$41,175,279	$6,354,836	$2,988,136	$69,986,988	$0
Safety Regulation	$277,848,292	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$277,848,292
ARTCCs	$611,492,616	$247,459,438	$13,498,731	$16,945,782	$52,711,586	$16,549,383	$38,881,051	$95,189,834	$0	$3,362,488	$127,674,564	$0
Towers	$124,645,324	$9,576,725	$688,822	$1,052,829	$11,931,820	$10,584,986	$46,371,814	$15,755,835	$9,395,633	$2,688,195	$16,679,546	$0
TRACONs	$684,209,857	$223,595,391	$9,729,645	$17,197,788	$121,655,887	$13,550,838	$101,666,978	$16,685,534	$9,345,997	$2,715,816	$88,867,679	$0
FSSs	$248,868,773	$18,327,755	$457,898	$883,263	$14,278,953	$14,862,538	$138,947,161	$20,888,863	$18,685,731	$3,174,378	$25,731,841	$0
TOTAL OPS BUDGET	$2,262,581,711	$625,142,999	$31,080,892	$45,784,138	$251,542,831	$69,332,824	$368,293,846	$189,614,544	$35,781,397	$14,868,133	$333,869,175	$297,351,732
F&E	$1,343,698,566	$784,777,841	$35,867,396	$58,434,727	$244,278,683	$22,565,558	$52,534,914	$93,162,885	$6,833,928	$4,682,599	$129,352,925	$0
R&D	$134,500,000	$62,145,656	$3,156,162	$4,452,728	$21,778,826	$2,352,169	$6,820,887	$9,824,612	$742,812	$489,424	$12,876,859	$11,462,865
AIP GRANTS	$712,000,000	$367,622,538	$27,367,193	$585,855	$71,632,471	$4,149,542	$126,688,116	$98,920,795	$5,227,149	$3,834,796	$6,931,534	$0
TOTAL DIRECT COSTS	$4,452,772,278	$1,759,689,826	$97,471,643	$181,897,448	$589,232,731	$98,399,284	$554,256,963	$398,722,835	$47,784,487	$23,874,951	$482,229,713	$308,813,997
INDIRECT COSTS												
Public Interest	$5,867,222	$0	$0	$0	$0	$0	$0	$0	$0	$0	$587,361	$4,539,861
Navaid Maintenance	$118,185,214	$41,227,236	$2,868,569	$2,981,922	$15,661,355	$4,268,888	$14,914,357	$12,658,889	$1,952,244	$893,589	$21,583,133	$0
Safety Regulation	$48,415,949	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$48,415,949
ARTCCs	$148,125,117	$58,587,159	$3,195,887	$4,011,973	$12,479,691	$3,918,142	$4,367,294	$22,536,638	$0	$888,881	$38,227,548	$0
Towers	$27,825,843	$2,142,117	$154,875	$235,317	$2,668,983	$2,349,732	$9,517,666	$3,524,257	$2,181,618	$601,294	$3,738,872	$0
TRACONs	$131,885,789	$52,538,774	$2,286,199	$4,041,886	$28,585,585	$3,183,885	$12,922,286	$3,920,642	$2,196,852	$637,954	$20,693,485	$0
FSSs	$49,614,139	$3,885,677	$136,567	$239,995	$4,263,887	$4,448,557	$19,481,512	$6,216,933	$3,192,631	$948,425	$7,688,835	$0
TOTAL OPS BUDGET	$511,359,274	$157,580,962	$7,833,297	$11,518,213	$63,659,348	$18,152,316	$61,123,836	$48,849,358	$9,442,538	$3,881,984	$84,350,426	$44,975,810
F&E	$8,731,674	$3,827,636	$151,324	$218,986	$1,158,135	$312,845	$1,153,569	$929,053	$143,368	$65,617	$1,579,142	$0
R&D	$4,815,335	$1,391,864	$69,566	$100,672	$528,748	$143,821	$531,538	$427,184	$65,909	$38,166	$725,963	$0
AIP GRANTS	$18,894,899	$5,568,321	$485,511	$38,237	$2,794,864	$196,287	$4,757,367	$3,868,294	$128,243	$91,863	$321,992	$0
TOTAL INDIRECT COSTS	$542,291,182	$167,568,783	$8,459,699	$11,868,108	$68,133,078	$18,805,189	$67,565,581	$54,013,882	$9,788,059	$4,869,638	$86,977,522	$44,975,810
GRAND TOTAL	$4,994,973,459	$1,927,249,089	$105,931,341	$112,957,556	$657,365,809	$117,204,474	$621,822,465	$444,735,837	$57,564,545	$27,144,581	$569,207,235	$353,789,807
USER GROUP PERCENTS	100.00%	38.58%	2.12%	2.26%	13.16%	2.35%	12.45%	8.90%	1.15%	0.54%	11.40%	7.08%

Table 4.6

MINSYS

1987 MINUMUM GA ALLOCATION

COST CATEGORY	VARIABLE COST	JOINT COST	AIR TAXI	GA-PISTON	GA-TURBO	ROTORCRAFT	TOTAL COST
OPERATIONS OVERHEAD							
GRANT ADMINISTATION	$0	$4,917,638	$608,858	$2,123,775	$1,927,715	$257,283	$4,917,638
AVIATION STANDARDS	$0	$30,922,969	$3,875,695	$12,886,868	$12,522,736	$1,637,737	$30,922,969
TOTAL OVERHEAD	$0	$35,840,599	$4,484,553	$15,010,574	$14,450,451	$1,895,020	$35,840,599
CAPITAL PROJECTS BENEFITING GA:							
CS GRANTS	$0	$4,919,730	$0	$554,291	$4,365,439	$0	$4,919,730
GA GRANTS	$0	$64,387,679	$1,447,234	$38,365,286	$24,495,238	$0	$64,387,679
F&E GA PROJECTS	$0	$22,861,641	$2,758,531	$9,846,959	$8,191,990	$1,264,161	$22,861,641
R&D GA PROJECTS	$0	$2,816,112	$347,885	$1,279,233	$1,838,735	$159,868	$2,816,112
TOTAL CAPITAL PROJECTS	$0	$94,185,162	$4,552,858	$50,045,688	$38,883,482	$1,423,221	$94,185,162
FLIGHT SERVICE STATIONS	$165,497,366	$28,422,535	$15,986,413	$139,838,533	$28,681,398	$18,373,557	$193,919,981
AIR ROUTE TRAFFIC CONTROL CENTERS	$126,538,428	$0	$13,682,195	$34,698,229	$78,238,884	$0	$126,538,428
TERMINAL NAVIGATION FACILITIES	$0	$8,857,359	$1,188,128	$3,889,268	$3,483,186	$464,873	$8,857,359
TERMINAL CONTRL FACILITIES:							
TOWERS	$15,725,267	$16,394,161	$3,179,176	$21,328,482	$4,768,382	$2,843,468	$32,119,428
TRACONS	$75,968,198	$1,558,353	$6,863,974	$58,246,468	$7,467,198	$4,182,565	$77,175,235
TOTAL MINIMUM GA ALLOCATION	$383,713,259	$185,178,169	$48,889,282	$322,169,235	$175,891,853	$21,182,784	$568,548,111
FULL GA SHARE OF BUDGET —DOLLARS			$134,551,842	$662,267,789	$479,794,618	$63,615,117	$1,340,228,558
—PERCENTS			2.69%	13.26%	9.61%	1.27%	26.84%
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET			0.98%	6.45%	3.51%	0.42%	11.39%
FULL GA SHARE OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC —DOLLARS			$117,294,474	$621,822,465	$444,735,837	$57,564,545	$1,241,327,321
—PERCENTS			2.35%	12.45%	8.90%	1.15%	24.85%
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC			0.90%	6.19%	3.25%	0.39%	10.76%

1988

Table 4.7

1988 ALLOCATION
REGULATORY COSTS ALLOCATED TO USERS

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMMUTER	AIR TAXI	GENL AVIATION PISTON	GENL AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	$27,862,972	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,886,510	$22,856,463
Navaid Maintenance	$346,488,254	$122,869,810	$6,099,834	$8,831,916	$47,537,739	$12,963,570	$40,629,000	$37,781,388	$5,876,136	$2,678,732	$61,941,817	$0
Safety Regulation	$147,250,698	$50,727,389	$2,535,837	$3,669,398	$35,172,521	$9,613,965	$18,897,647	$16,842,734	$2,448,869	$1,115,644	$7,834,784	$0
ARTCCs	$633,314,945	$255,834,837	$13,955,559	$17,519,184	$56,555,745	$17,932,876	$39,514,676	$99,322,923	$0	$3,529,278	$129,151,475	$0
Towers	$130,478,512	$10,443,546	$751,178	$1,147,251	$12,938,959	$11,041,429	$48,261,361	$16,568,548	$9,875,581	$2,825,491	$16,625,264	$0
TRACONs	$645,797,395	$234,478,184	$18,283,285	$18,834,827	$138,446,664	$15,379,939	$114,328,168	$18,938,887	$18,688,158	$3,881,674	$98,297,698	$0
FSSs	$238,858,294	$10,183,317	$458,813	$792,163	$14,283,469	$14,984,925	$138,693,436	$20,868,574	$18,718,258	$3,183,926	$24,851,414	$0
TOTAL OPS BUDGET	$2,169,955,071	$683,735,482	$33,996,416	$49,994,731	$296,855,098	$81,835,983	$400,324,287	$209,514,958	$39,518,922	$16,414,738	$335,788,153	$22,856,463
F&E	$1,414,600,000	$738,414,563	$37,575,193	$52,853,552	$262,693,664	$24,535,259	$55,656,536	$98,677,432	$6,428,418	$4,968,162	$132,797,222	$0
R&D	$214,000,000	$105,237,246	$5,286,439	$7,598,681	$39,964,535	$4,585,701	$15,201,849	$14,477,278	$1,886,444	$943,484	$18,826,431	$0
AIP GRANTS	$600,000,000	$413,038,428	$38,748,533	$567,665	$88,717,485	$4,748,420	$142,478,295	$110,832,382	$5,884,885	$3,482,882	$7,591,466	$0
TOTAL DIRECT COSTS	$4,598,555,071	$1,940,425,639	$107,606,582	$111,006,829	$688,238,782	$115,697,282	$613,668,967	$433,501,961	$53,717,789	$25,728,385	$494,923,271	$22,856,463
INDIRECT COSTS												
Public Interest	$9,235,417	$0	$0	$0	$0	$0	$0	$0	$0	$0	$882,485	$8,432,932
Navaid Maintenance	$180,512,328	$63,861,990	$3,151,231	$4,562,658	$24,558,439	$6,697,181	$22,543,911	$19,518,172	$3,035,667	$1,383,858	$31,999,387	$0
Safety Regulation	$59,461,886	$21,386,998	$1,069,882	$1,547,147	$12,847,359	$3,314,262	$7,342,436	$6,149,145	$948,475	$429,591	$4,434,672	$0
ARTCCs	$219,326,415	$91,788,135	$5,002,611	$6,288,854	$20,273,385	$6,428,863	$6,468,439	$35,684,828	$0	$1,265,128	$46,296,588	$0
Towers	$43,256,746	$3,797,594	$273,148	$417,176	$4,705,883	$4,015,883	$13,362,974	$6,821,921	$3,591,835	$1,027,435	$6,845,457	$0
TRACONs	$214,118,482	$85,263,889	$3,718,182	$6,557,988	$47,434,282	$5,592,593	$20,852,738	$6,886,738	$3,857,435	$1,120,586	$32,834,867	$0
FSSs	$78,760,285	$5,036,563	$222,967	$391,796	$7,024,889	$7,371,822	$29,223,657	$18,321,381	$5,381,148	$1,574,737	$12,291,253	$0
TOTAL OPS BUDGET	$804,662,597	$278,254,368	$13,429,142	$19,756,811	$116,843,277	$33,418,844	$99,794,147	$84,581,369	$16,725,752	$6,881,336	$134,784,619	$8,432,932
F&E	$15,476,952	$5,354,652	$267,574	$387,419	$2,885,288	$568,657	$2,063,788	$1,657,386	$257,761	$117,585	$2,717,891	$0
R&D	$18,756,395	$3,720,354	$185,987	$269,174	$1,448,838	$395,097	$1,437,820	$1,151,478	$179,898	$81,641	$1,887,885	$0
AIP GRANTS	$25,185,345	$7,775,838	$565,634	$46,386	$3,872,920	$288,611	$6,561,878	$5,238,848	$188,558	$127,578	$465,581	$0
TOTAL INDIRECT COSTS	$856,081,289	$287,104,412	$14,448,257	$20,459,798	$124,250,387	$34,663,288	$109,855,953	$92,548,281	$17,343,161	$7,128,851	$139,775,816	$8,432,932
GRAND TOTAL	$5,454,556,360	$2,227,530,052	$122,054,839	$131,465,628	$804,481,089	$150,360,491	$723,516,919	$526,042,163	$71,060,950	$32,856,437	$634,698,287	$30,449,395
USER GROUP PERCENTS	100.00%	40.84%	2.24%	2.41%	14.75%	2.76%	13.26%	9.64%	1.30%	0.60%	11.64%	0.56%

Table 4.8

1988 ALLOCATION
REGULATORY COSTS ALLOCATED TO PUBLIC

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMMUTER	AIR TAXI	GENL AVIATION PISTON	GENL AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	$27,862,972	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,806,510	$22,056,463
Navaid Maintenance	$346,448,254	$122,869,018	$6,899,834	$8,831,916	$47,537,739	$12,963,578	$48,629,800	$37,781,388	$5,876,136	$2,678,732	$41,941,817	$0
Safety Regulation	$317,519,365	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$317,519,365
ARTCCs	$633,314,945	$253,834,837	$13,955,559	$17,519,184	$56,555,745	$17,932,876	$39,514,676	$99,322,923	$0	$3,529,270	$129,151,475	$0
Towers	$130,478,512	$18,442,546	$751,178	$1,147,251	$12,938,959	$11,841,429	$48,261,361	$16,560,548	$9,175,501	$2,825,491	$16,625,264	$0
TRACONs	$645,797,395	$234,478,184	$18,283,285	$16,834,827	$138,446,664	$15,379,939	$114,328,168	$18,938,887	$18,688,158	$3,881,674	$98,297,698	$0
FSSs	$238,850,294	$18,183,317	$458,813	$792,163	$14,283,469	$14,984,925	$138,693,436	$28,868,574	$18,718,258	$3,183,926	$24,851,414	$0
TOTAL OPS BUDGET	$2,340,223,737	$633,868,893	$31,468,568	$46,325,341	$261,682,576	$72,221,938	$381,426,648	$193,472,224	$37,878,854	$15,299,894	$328,673,369	$339,575,827
F&E	$1,414,600,000	$738,414,563	$37,575,193	$52,853,552	$262,693,664	$24,535,259	$55,656,536	$98,677,432	$6,428,418	$4,968,162	$132,797,222	$0
R&D	$214,000,000	$58,872,278	$4,968,379	$7,138,164	$37,485,881	$3,989,748	$12,988,568	$12,587,261	$1,568,848	$883,728	$15,596,675	$18,237,358
AIP GRANTS	$800,000,000	$413,838,428	$30,748,533	$567,865	$88,717,485	$4,748,429	$142,478,295	$110,832,382	$5,884,885	$3,482,862	$7,591,466	$0
TOTAL DIRECT COSTS	$4,768,823,737	$1,883,333,354	$104,752,685	$106,876,122	$642,579,647	$105,487,366	$592,470,039	$415,489,218	$58,978,524	$24,473,866	$484,658,732	$357,813,186
INDIRECT COSTS												
Public Interest	$6,866,164	$0	$0	$0	$0	$0	$0	$0	$0	$0	$596,615	$6,269,548
Navaid Maintenance	$134,999,236	$47,841,425	$2,350,678	$3,483,533	$18,319,498	$4,995,738	$17,161,859	$14,559,684	$2,264,472	$1,832,296	$23,870,853	$0
Safety Regulation	$52,382,575	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$52,382,575
ARTCCs	$188,673,835	$75,472,643	$4,116,977	$5,168,269	$16,684,299	$5,298,875	$5,499,837	$29,380,884	$0	$1,841,157	$38,108,494	$0
Towers	$35,858,588	$2,977,747	$214,179	$327,113	$3,689,258	$3,148,229	$11,618,384	$4,721,872	$2,815,781	$805,626	$4,740,327	$0
TRACONs	$173,531,115	$68,881,224	$2,993,852	$5,291,828	$38,276,814	$4,512,823	$17,565,974	$5,557,188	$3,112,674	$784,233	$26,495,393	$0
FSSs	$61,468,545	$3,848,372	$178,366	$299,366	$5,367,625	$5,632,712	$23,618,328	$7,866,432	$4,858,521	$1,283,236	$9,391,584	$0
TOTAL OPS BUDGET	$644,979,977	$198,141,418	$9,846,853	$14,478,189	$82,336,694	$23,579,568	$75,483,574	$62,825,972	$12,243,459	$4,986,549	$103,194,466	$58,652,123
F&E	$11,586,495	$3,979,981	$198,841	$287,959	$1,549,937	$422,669	$1,536,762	$1,231,835	$191,568	$87,338	$2,819,547	$0
R&D	$7,996,950	$2,765,453	$138,191	$200,886	$1,076,960	$293,688	$1,069,567	$855,930	$133,123	$60,686	$1,483,264	$0
AIP GRANTS	$23,771,278	$7,350,829	$535,824	$43,113	$3,678,347	$265,884	$6,221,195	$4,959,115	$170,598	$129,724	$435,346	$0
TOTAL INDIRECT COSTS	$688,254,781	$212,237,666	$10,718,149	$15,021,267	$88,633,939	$24,560,928	$84,311,098	$69,872,851	$12,738,759	$5,255,297	$107,852,624	$58,652,123
GRAND TOTAL	$5,457,078,438	$2,095,571,020	$115,470,833	$121,897,389	$731,213,586	$129,968,294	$676,781,136	$484,562,069	$63,709,283	$29,728,363	$591,711,355	$416,465,309
USER GROUP PERCENTS	100.00%	38.40%	2.12%	2.23%	13.40%	2.38%	12.40%	8.88%	1.17%	0.54%	10.84%	7.63%

Table 4.9

NINSYS

1988 MINIMUM GA ALLOCATION

COST CATEGORY	VARIABLE COST	JOINT COST	AIR TAXI	GA-PISTON	GA-TURBO	ROTORCRAFT	TOTAL COST
OPERATIONS OVERHEAD							
GRANT ADMINISTATION	$0	$6,244,746	$785,179	$2,697,970	$2,433,110	$328,487	$6,244,746
AVIATION STANDARDS	$0	$31,852,244	$4,049,596	$13,300,185	$12,808,274	$1,694,189	$31,852,244
TOTAL OVERHEAD	$0	$38,096,990	$4,834,774	$15,998,156	$15,241,384	$2,022,676	$38,096,990
CAPITAL PROJECTS							
BENEFITING GA:							
CS GRANTS	$0	$5,527,787	$0	$622,799	$4,904,988	$0	$5,527,787
GA GRANTS	$0	$72,255,819	$1,626,106	$43,106,973	$27,522,740	$0	$72,255,819
F&E GA PROJECTS	$0	$23,226,718	$2,943,747	$10,369,387	$8,579,319	$1,334,344	$23,226,718
R&D GA PROJECTS	$0	$6,870,674	$860,626	$3,111,715	$2,588,228	$390,105	$6,870,674
TOTAL CAPITAL PROJECTS	$0	$107,880,997	$5,430,480	$57,210,793	$43,515,275	$1,724,449	$107,880,997
FLIGHT SERVICE STATIONS	$164,536,477	$29,441,265	$16,815,787	$130,753,910	$28,824,095	$18,383,949	$193,977,742
AIR ROUTE TRAFFIC CONTROL CENTERS	$131,239,931	$0	$14,590,762	$35,833,257	$80,815,912	$0	$131,239,931
TERMINAL NAVIGATION FACILITIES	$0	$9,883,032	$1,235,964	$4,219,989	$3,830,082	$517,078	$9,883,032
TERMINAL CONTRL FACILITIES:							
TOWERS	$17,303,867	$18,933,704	$3,676,512	$23,758,538	$5,514,234	$3,288,288	$36,237,571
TRACONS	$87,357,087	$1,987,284	$6,973,799	$66,985,631	$8,587,558	$4,810,107	$88,754,425
TOTAL MINIMUM GA ALLOCATION	$400,437,363	$206,143,272	$52,758,077	$342,760,274	$186,328,451	$22,746,548	$685,990,689
FULL GA SHARE OF BUDGET --DOLLARS			$150,368,491	$723,516,919	$526,842,163	$71,860,950	$1,470,988,522
--PERCENTS			2.76%	13.26%	9.64%	1.30%	26.97%
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET			0.97%	6.28%	3.42%	0.42%	11.11%
FULL GA SHARE OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC --DOLLARS			$129,968,294	$676,781,136	$484,562,869	$63,709,283	$1,355,820,783
--PERCENTS			2.38%	12.40%	8.88%	1.17%	24.83%
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC			0.89%	6.04%	3.18%	0.39%	10.52%

1989

Table 4.10
1989 ALLOCATION
REGULATORY COSTS ALLOCATED TO USERS

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMMUTER	AIR TAXI	GEN AVIATION PISTON	GEN AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	$28,595,489	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,924,099	$22,671,310
Navaid Maintenance	$316,547,673	$118,996,883	$5,544,965	$8,833,729	$44,332,577	$12,127,983	$38,141,896	$34,668,635	$5,438,444	$2,468,484	$54,794,967	$0
Safety Regulation	$151,668,219	$51,951,786	$2,596,338	$3,759,338	$36,618,948	$18,885,489	$19,542,154	$16,476,339	$2,528,158	$1,150,565	$7,639,191	$0
ARTCCs	$653,396,493	$264,126,489	$14,487,966	$18,887,848	$68,596,477	$19,428,494	$48,976,529	$183,583,292	$0	$3,668,652	$130,517,785	$0
Towers	$136,483,825	$11,388,978	$819,172	$1,251,118	$14,829,882	$11,591,568	$58,165,534	$17,385,658	$18,367,541	$2,966,269	$16,518,922	$0
TRACONs	$698,818,985	$245,611,791	$18,687,678	$18,891,165	$139,715,835	$17,489,891	$128,291,468	$21,437,598	$12,897,746	$3,468,255	$92,479,166	$0
FSSs	$236,943,883	$18,814,815	$443,431	$779,125	$14,898,454	$14,987,411	$137,984,326	$28,873,223	$18,722,898	$3,184,952	$23,936,648	$0
TOTAL OPS BUDGET	$2,215,654,488	$694,889,861	$34,499,483	$50,881,498	$389,390,573	$85,461,948	$415,101,906	$214,424,646	$41,863,987	$16,939,177	$331,218,857	$22,671,310
F&E	$1,414,600,000	$734,481,231	$37,368,695	$52,566,182	$268,314,318	$25,336,962	$56,371,637	$99,238,652	$6,584,229	$5,885,298	$128,392,965	$0
R&D	$222,000,000	$108,591,273	$5,453,579	$7,835,262	$42,388,222	$4,877,531	$15,923,199	$15,881,769	$1,988,838	$986,386	$18,952,828	$0
AIP GRANTS	$600,000,000	$413,813,872	$30,747,143	$565,438	$84,947,961	$4,821,842	$142,720,616	$110,588,824	$5,895,616	$3,394,248	$7,394,840	$0
TOTAL DIRECT COSTS	$4,452,254,488	$1,950,174,637	$108,068,899	$111,788,380	$784,961,074	$120,497,483	$630,117,358	$439,245,892	$53,444,663	$26,324,939	$486,958,731	$22,671,310
INDIRECT COSTS												
Public Interest	$8,818,846	$0	$0	$0	$0	$0	$0	$0	$0	$0	$691,277	$8,118,769
Navaid Maintenance	$152,828,138	$52,848,189	$2,648,183	$3,825,865	$21,187,983	$5,774,451	$19,471,836	$16,586,646	$2,589,386	$1,175,318	$26,889,321	$0
Safety Regulation	$53,629,598	$19,693,378	$984,877	$1,425,150	$12,868,993	$3,112,138	$6,834,842	$5,684,678	$876,792	$398,778	$3,951,568	$0
ARTCCs	$296,866,132	$85,920,468	$4,686,898	$5,883,722	$19,712,862	$6,317,496	$6,215,835	$33,695,663	$0	$1,197,318	$42,457,469	$0
Towers	$41,836,861	$3,688,576	$265,347	$405,298	$4,543,633	$3,754,186	$13,888,749	$5,630,735	$3,357,768	$960,693	$5,350,823	$0
TRACONs	$207,469,371	$81,168,827	$3,531,987	$6,243,817	$46,172,825	$5,753,232	$21,833,681	$7,864,541	$3,968,234	$1,152,774	$30,561,653	$0
FSSs	$71,495,587	$4,496,578	$199,113	$349,849	$6,338,597	$6,693,841	$27,868,882	$9,372,656	$4,814,528	$1,438,132	$10,748,388	$0
TOTAL OPS BUDGET	$741,955,716	$247,815,120	$12,307,486	$18,132,883	$109,935,212	$31,485,336	$94,495,344	$77,974,912	$15,686,691	$6,315,884	$119,849,840	$8,118,769
F&E	$14,242,110	$4,911,832	$245,338	$355,453	$1,961,588	$536,684	$1,924,812	$1,533,918	$248,625	$189,218	$2,424,418	$0
R&D	$10,268,213	$3,539,866	$176,839	$256,218	$1,413,847	$386,784	$1,389,341	$1,105,646	$173,442	$78,724	$1,747,512	$0
AIP GRANTS	$22,772,268	$7,632,845	$512,848	$48,682	$3,538,795	$257,654	$5,975,838	$4,742,831	$163,697	$115,389	$1402,866	$0
TOTAL INDIRECT COSTS	$789,238,248	$263,298,163	$13,241,783	$18,784,268	$116,841,354	$32,586,378	$103,784,526	$85,356,587	$16,184,455	$6,618,336	$124,423,848	$8,118,769
GRAND TOTAL	$5,441,492,735	$2,213,472,741	$121,310,682	$130,572,568	$817,802,428	$153,083,862	$733,901,884	$524,601,599	$71,629,118	$32,943,275	$611,384,579	$30,790,079
USER GROUP PERCENTS	100.00%	40.68%	2.23%	2.40%	15.03%	2.81%	13.49%	9.64%	1.32%	0.61%	11.24%	0.57%

Table 4.11

1989 ALLOCATION
REGULATORY COSTS ALLOCATED TO PUBLIC

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMMUTER	AIR TAXI	GENL AVIATION PISTON	GENL AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	$28,595,489	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,924,099	$22,671,310
Navaid Maintenance	$316,547,673	$118,996,863	$5,544,965	$6,833,720	$44,332,577	$12,127,983	$38,141,896	$34,668,635	$5,438,444	$2,468,484	$54,794,967	$0
Safety Regulation	$386,706,298	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$386,706,298
ARTCCs	$655,396,493	$264,126,489	$14,487,986	$18,887,640	$68,596,477	$19,428,494	$48,976,529	$183,583,282	$0	$3,688,652	$130,317,785	$0
Towers	$136,483,825	$11,388,978	$819,172	$1,251,118	$14,829,882	$11,591,568	$58,165,534	$17,385,658	$18,367,541	$2,966,269	$16,518,922	$0
TRACONs	$498,818,985	$245,611,791	$18,687,678	$18,891,165	$139,715,835	$17,489,891	$128,291,468	$21,437,598	$12,887,746	$3,488,255	$92,479,166	$0
FSSs	$236,943,883	$18,814,815	$443,431	$779,125	$14,898,454	$14,987,411	$137,984,326	$20,873,223	$10,722,898	$3,184,952	$23,936,848	$0
TOTAL OPS BUDGET	$2,372,692,559	$642,137,275	$31,983,152	$47,842,168	$272,771,625	$75,456,539	$395,559,752	$197,948,387	$38,535,628	$15,788,612	$324,171,786	$331,377,608
F&E	$1,414,688,888	$734,481,231	$37,368,695	$52,586,182	$268,314,318	$25,336,962	$56,371,637	$99,238,652	$6,584,229	$5,885,298	$129,392,965	$0
R&D	$222,888,888	$102,868,486	$5,124,722	$7,358,884	$39,678,988	$4,158,254	$13,515,548	$13,825,669	$1,658,291	$639,987	$15,712,298	$16,919,129
AIP GRANTS	$888,888,888	$413,813,872	$38,747,143	$565,438	$88,947,961	$4,821,842	$142,728,616	$118,588,824	$5,895,616	$3,394,248	$7,394,848	$0
TOTAL DIRECT COSTS	$4,889,292,339	$1,891,639,985	$185,143,713	$187,552,584	$661,712,883	$189,772,797	$688,167,553	$428,712,652	$52,593,965	$25,827,975	$476,671,841	$258,296,729
INDIRECT COSTS												
Public Interest	$6,352,954	$0	$0	$0	$0	$0	$0	$0	$0	$0	$514,175	$6,838,779
Navaid Maintenance	$113,615,528	$39,489,423	$1,968,755	$2,852,394	$15,748,398	$4,386,872	$14,766,825	$12,389,198	$1,938,934	$876,442	$19,455,897	$0
Safety Regulation	$48,451,847	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$48,451,847
ARTCCs	$169,458,815	$78,583,828	$3,858,296	$4,833,489	$16,193,496	$5,189,835	$5,253,528	$27,681,852	$0	$983,599	$34,878,892	$0
Towers	$33,177,197	$2,887,543	$207,691	$317,284	$3,556,911	$2,938,986	$11,292,196	$4,487,932	$2,628,578	$752,863	$4,188,181	$0
TRACONs	$167,733,488	$65,328,666	$2,842,745	$5,824,737	$37,161,884	$4,638,538	$18,323,198	$5,762,844	$3,193,861	$927,818	$24,597,925	$0
FSSs	$55,731,774	$3,435,199	$152,114	$267,278	$4,836,322	$5,113,826	$21,784,769	$7,168,333	$3,678,188	$1,892,563	$8,211,877	$0
TOTAL OPS BUDGET	$594,719,916	$181,644,659	$9,821,682	$13,295,894	$77,489,811	$22,179,168	$71,438,588	$57,268,558	$11,431,465	$4,632,485	$91,845,547	$54,489,626
F&E	$18,593,358	$3,652,828	$182,442	$264,328	$1,458,645	$399,839	$1,433,158	$1,148,679	$178,937	$81,219	$1,882,882	$0
R&D	$7,637,546	$2,632,542	$131,512	$198,539	$1,851,455	$287,645	$1,434,472	$822,251	$128,986	$58,546	$1,299,597	$0
AIP GRANTS	$21,635,881	$6,672,544	$486,857	$37,946	$3,357,859	$244,235	$5,684,433	$4,518,884	$155,231	$189,576	$377,917	$0
TOTAL INDIRECT COSTS	$634,586,613	$194,681,773	$9,821,613	$13,787,987	$83,356,171	$23,110,887	$79,562,563	$63,734,284	$11,894,619	$4,881,826	$95,325,943	$54,489,626
GRAND TOTAL	$5,443,879,172	$2,086,241,757	$194,965,326	$201,340,412	$745,069,055	$212,882,684	$687,758,117	$484,446,937	$64,488,584	$29,909,881	$571,997,744	$484,786,355
USER GROUP PERCENTS	100.00%	38.32%	2.11%	2.23%	13.69%	2.44%	12.63%	8.90%	1.18%	0.55%	10.51%	7.44%

Table 4.12

NINSYS

1989 MINUMUM GA ALLOCATION

COST CATEGORY	VARIABLE COST	JOINT COST	AIR TAXI	GA-PISTON	GA-TURBO	ROTORCRAFT	TOTAL COST
OPERATIONS OVERHEAD							
GRANT ADMINISTATION	$0	$5,759,831	$734,464	$2,495,615	$2,225,257	$304,494	$5,759,831
AVIATION STANDARDS	$0	$32,809,461	$4,231,587	$13,735,626	$13,087,916	$1,754,332	$32,809,461
TOTAL OVERHEAD	$0	$38,569,292	$4,966,051	$16,231,242	$15,313,174	$2,058,826	$38,569,292
CAPITAL PROJECTS BENEFITING GA:							
CS GRANTS	$0	$5,527,787	$0	$622,799	$4,904,988	$0	$5,527,787
GA GRANTS	$0	$72,255,819	$1,626,186	$43,106,973	$27,522,740	$0	$72,255,819
F&E GA PROJECTS	$0	$23,228,868	$2,981,935	$10,384,912	$8,524,058	$1,337,163	$23,228,868
R&D GA PROJECTS	$0	$7,127,819	$904,933	$3,230,286	$2,586,810	$405,791	$7,127,819
TOTAL CAPITAL PROJECTS	$0	$108,139,493	$5,512,974	$57,344,969	$43,538,596	$1,742,954	$108,139,493
FLIGHT SERVICE STATIONS	$162,966,314	$30,495,572	$16,889,253	$138,826,321	$28,980,537	$18,365,774	$193,461,886
AIR ROUTE TRAFFIC CONTROL CENTERS	$136,851,039	$0	$15,648,501	$36,988,706	$83,421,832	$0	$136,851,039
TERMINAL NAVIGATION FACILITIES	$0	$10,849,669	$1,388,716	$4,677,728	$4,207,491	$575,734	$10,849,669
TERMINAL CONTRL FACILITIES:							
TOWERS	$19,818,268	$21,853,189	$4,259,327	$26,414,188	$6,388,373	$3,889,561	$40,871,448
TRACONS	$100,325,297	$2,526,000	$8,009,863	$76,929,687	$9,862,376	$5,524,171	$101,930,871
TOTAL MINIMUM GA ALLOCATION	$418,360,909	$212,433,214	$55,865,885	$356,612,848	$191,712,379	$24,077,819	$629,872,898
FULL GA SHARE OF BUDGET —DOLLARS			$153,883,862	$733,901,884	$524,681,599	$71,629,118	$1,483,216,463
—PERCENTS			2.81%	13.49%	9.64%	1.32%	27.26%
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET			1.03%	6.55%	3.52%	0.44%	11.58%
FULL GA SHARE OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC —DOLLARS			$132,882,884	$687,750,117	$484,446,937	$64,488,584	$1,369,568,521
—PERCENTS			2.44%	12.63%	8.90%	1.18%	25.16%
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC			0.95%	6.38%	3.28%	0.41%	10.97%

1990

Table 4.13
1990 ALLOCATION
REGULATORY COSTS ALLOCATED TO USERS

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMMUTER	AIR TAXI	GENL AVIATION PISTON	GENL AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	$29,583,631	$0	$0	$0	$0	$0	$0	$0	$0	$0	$6,866,316	$23,417,316
Naval Maintenance	$289,261,091	$108,875,953	$5,837,610	$7,384,347	$41,341,287	$11,353,234	$35,771,898	$31,814,162	$5,837,538	$2,275,798	$48,449,271	$0
Safety Regulation	$156,218,265	$53,187,289	$2,657,137	$3,850,367	$38,128,671	$10,417,091	$20,215,824	$16,916,451	$2,619,771	$1,186,686	$7,639,778	$0
ARTCCs	$677,676,461	$272,286,927	$14,853,852	$18,645,856	$64,838,477	$21,821,978	$42,464,967	$187,972,486	$0	$3,836,615	$131,764,184	$0
Towers	$142,685,773	$12,420,968	$893,399	$1,364,476	$15,289,746	$12,154,389	$52,875,939	$18,229,699	$10,878,866	$3,110,275	$16,356,184	$0
TRACONs	$737,850,496	$256,989,228	$11,182,762	$19,766,258	$149,476,269	$19,554,958	$143,674,288	$24,283,194	$13,556,832	$3,938,265	$94,688,489	$0
FSSs	$234,279,183	$9,818,314	$434,877	$764,828	$13,952,781	$14,865,668	$136,769,465	$20,815,938	$10,694,121	$3,176,528	$22,987,543	$0
TOTAL OPS BUDGET	$2,266,674,900	$785,578,671	$35,858,837	$51,695,331	$322,939,151	$89,467,269	$438,971,582	$219,951,851	$42,779,128	$17,524,168	$327,291,684	$23,417,316
F&E	$1,414,686,000	$730,295,645	$37,147,842	$52,382,941	$274,874,436	$26,178,746	$57,115,289	$99,819,236	$6,585,274	$5,844,125	$126,637,266	$0
R&D	$229,000,000	$111,376,396	$5,591,662	$8,039,379	$44,539,485	$5,168,925	$16,595,515	$15,621,781	$2,869,481	$1,825,685	$18,979,930	$0
AIP GRANTS	$680,000,000	$412,982,731	$38,745,478	$563,486	$81,176,947	$4,984,297	$142,984,626	$118,149,611	$5,988,885	$3,386,418	$7,198,334	$0
TOTAL DIRECT COSTS	$4,710,274,900	$1,960,233,443	$108,543,811	$112,681,131	$722,729,939	$125,711,238	$647,666,933	$445,542,398	$57,341,969	$26,966,388	$479,587,215	$23,417,316
INDIRECT COSTS												
Public Interest	$8,597,262	$0	$0	$0	$0	$0	$0	$0	$0	$0	$613,751	$7,983,511
Naval Maintenance	$132,398,133	$45,798,885	$2,286,696	$3,315,623	$18,765,831	$5,153,513	$17,333,131	$14,441,234	$2,286,663	$1,033,837	$21,992,329	$0
Safety Regulation	$52,992,243	$18,859,832	$942,892	$1,365,486	$11,798,425	$3,848,224	$6,621,288	$5,466,969	$851,826	$385,251	$3,669,809	$0
ARTCCs	$298,785,285	$83,397,238	$4,549,258	$5,718,935	$19,856,564	$6,438,784	$6,149,834	$33,878,263	$0	$1,175,895	$48,357,314	$0
Towers	$48,344,787	$3,737,818	$268,849	$418,689	$4,577,842	$3,657,575	$13,877,738	$5,485,831	$3,271,358	$935,978	$4,922,813	$0
TRACONs	$298,483,813	$88,895,386	$3,485,389	$6,168,589	$46,586,964	$6,125,831	$23,466,636	$7,543,368	$4,225,238	$1,227,431	$29,486,435	$0
FSSs	$66,985,842	$4,156,677	$184,109	$323,458	$5,987,818	$6,293,523	$25,784,178	$8,812,626	$4,527,459	$1,344,813	$9,731,996	$0
TOTAL OPS BUDGET	$710,426,485	$236,836,958	$11,716,313	$17,286,541	$107,483,835	$30,709,369	$92,352,710	$74,828,284	$15,161,728	$6,181,598	$118,773,638	$7,983,511
F&E	$13,561,810	$4,658,825	$232,616	$337,284	$1,988,966	$524,244	$1,856,758	$1,469,844	$232,612	$185,866	$2,237,183	$0
R&D	$10,886,848	$3,463,484	$172,962	$250,788	$1,419,415	$389,883	$1,382,720	$1,092,318	$172,959	$78,137	$1,663,461	$0
AIP GRANTS	$21,648,583	$6,661,910	$485,324	$37,752	$3,364,538	$248,181	$5,687,563	$4,491,558	$155,575	$189,243	$367,827	$0
TOTAL INDIRECT COSTS	$755,682,918	$250,820,377	$12,687,214	$17,912,365	$114,176,746	$31,871,517	$101,279,744	$81,873,196	$15,722,874	$6,394,865	$115,041,309	$7,983,511
GRAND TOTAL	$5,465,957,818	$2,211,053,820	$121,150,224	$130,593,496	$836,906,685	$157,582,755	$748,946,677	$527,415,595	$73,064,843	$33,374,373	$594,548,523	$31,400,827
USER GROUP PERCENTS	100.00%	40.45%	2.22%	2.39%	15.31%	2.88%	13.70%	9.65%	1.34%	0.61%	10.88%	0.57%

Table 4.14

1990 ALLOCATION
REGULATORY COSTS ALLOCATED TO PUBLIC

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMMUTER	AIR TAXI	GENL AVIATION PISTON	GENL AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	$29,583,631	$0	$0	$0	$0	$0	$0	$0	$0	$0	$6,886,316	$23,417,316
Navaid Maintenance	$289,261,091	$100,875,953	$5,837,610	$7,384,347	$41,341,287	$11,353,234	$35,771,898	$31,814,162	$5,837,538	$2,275,798	$48,449,271	$0
Safety Regulation	$386,627,221	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$386,627,221
ARTCCs	$677,676,461	$272,286,927	$14,853,852	$18,645,856	$64,838,477	$21,021,978	$42,464,967	$107,972,486	$0	$3,836,615	$131,764,184	$0
Towers	$142,685,773	$12,429,968	$893,399	$1,364,476	$15,209,746	$12,154,389	$52,875,939	$18,229,699	$10,878,866	$3,110,275	$16,356,184	$0
TRACONs	$737,850,496	$256,989,228	$11,182,762	$19,766,258	$149,476,269	$19,654,998	$143,674,288	$24,283,194	$13,556,832	$3,938,265	$94,688,489	$0
FSSs	$234,279,183	$9,818,314	$434,877	$764,828	$13,952,781	$14,865,668	$136,769,465	$20,815,938	$10,694,121	$3,176,528	$22,987,543	$0
TOTAL OPS BUDGET	$2,417,863,856	$652,391,382	$32,401,788	$47,844,964	$284,818,488	$79,050,178	$410,756,478	$203,835,488	$40,159,357	$16,337,473	$320,251,986	$338,044,537
F&E	$1,414,600,000	$738,295,645	$37,147,842	$52,382,941	$274,074,436	$26,178,746	$57,115,289	$99,819,236	$6,585,274	$5,844,125	$126,837,266	$0
R&D	$229,000,000	$104,611,274	$5,253,821	$7,549,522	$41,766,982	$4,399,535	$14,079,778	$13,488,123	$1,731,645	$872,982	$15,738,739	$19,515,678
AIP GRANTS	$600,000,000	$412,982,731	$38,745,478	$563,488	$81,176,947	$4,984,297	$142,984,626	$110,149,611	$5,988,885	$3,386,418	$7,198,334	$0
TOTAL DIRECT COSTS	$4,860,683,856	$1,908,281,032	$105,548,832	$108,268,987	$681,828,765	$114,532,756	$624,936,172	$426,492,370	$54,384,362	$25,648,999	$469,218,246	$349,560,214
INDIRECT COSTS												
Public Interest	$6,396,368	$0	$0	$0	$0	$0	$0	$0	$0	$0	$456,631	$5,939,737
Navaid Maintenance	$98,909,281	$34,143,241	$1,785,868	$2,472,285	$13,992,686	$3,842,782	$13,111,405	$10,768,863	$1,785,844	$778,281	$16,398,588	$0
Safety Regulation	$46,618,113	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$46,618,113
ARTCCs	$164,746,689	$68,393,898	$3,730,793	$4,683,471	$16,284,135	$5,280,386	$5,194,829	$27,120,536	$0	$963,682	$33,096,568	$0
Towers	$32,540,372	$2,920,510	$210,863	$320,826	$3,576,231	$2,857,813	$11,235,582	$4,286,385	$2,556,048	$731,312	$3,845,771	$0
TRACONs	$168,088,918	$64,388,486	$2,798,985	$4,945,655	$37,399,998	$4,917,815	$19,622,859	$6,855,887	$3,392,813	$985,381	$23,671,788	$0
FSSs	$52,135,172	$3,173,276	$140,552	$246,933	$4,509,588	$4,804,578	$20,640,867	$6,727,783	$3,456,336	$1,826,653	$7,429,565	$0
TOTAL OPS BUDGET	$569,454,833	$172,938,618	$8,584,480	$12,669,169	$75,762,558	$21,703,213	$69,883,861	$54,958,414	$11,189,433	$4,477,388	$84,898,735	$52,557,858
F&E	$10,889,995	$3,464,843	$173,830	$250,886	$1,419,972	$389,956	$1,383,268	$1,892,739	$173,827	$78,168	$1,664,114	$0
R&D	$7,504,820	$2,576,429	$128,663	$186,557	$1,855,880	$289,968	$1,829,763	$812,552	$128,662	$58,125	$1,237,422	$0
AIP GRANTS	$20,578,158	$6,334,276	$461,627	$35,398	$3,204,936	$235,671	$5,420,157	$4,288,396	$147,833	$183,943	$345,922	$0
TOTAL INDIRECT COSTS	$607,618,998	$185,306,157	$9,347,880	$13,142,883	$81,443,346	$22,618,808	$77,636,241	$61,144,188	$11,558,955	$4,717,544	$88,146,193	$52,557,858
GRAND TOTAL	$5,468,302,853	$2,085,587,189	$114,895,833	$121,402,918	$763,272,111	$137,151,565	$702,572,413	$487,636,478	$65,943,317	$30,358,544	$557,364,439	$402,118,864
USER GROUP PERCENTS	100.00%	38.14%	2.10%	2.22%	13.96%	2.51%	12.85%	8.92%	1.21%	0.56%	10.19%	7.35%

Table 4.15

MINSYS

1990 MINUMUM GA ALLOCATION

COST CATEGORY	VARIABLE COST	JOINT COST	AIR TAXI	GA-PISTON	GA-TURBO	ROTORCRAFT	TOTAL COST
OPERATIONS OVERHEAD							
GRANT ADMINISTATION	$0	$5,516,975	$713,611	$2,398,156	$2,111,725	$293,483	$5,516,975
AVIATION STANDARDS	$0	$33,795,454	$4,421,761	$14,195,864	$13,360,115	$1,818,513	$33,795,454
TOTAL OVERHEAD	$0	$39,312,429	$5,135,371	$16,593,220	$15,471,841	$2,111,996	$39,312,429
CAPITAL PROJECTS							
BENEFITING GA:							
CS GRANTS	$0	$5,527,787	$0	$622,799	$4,904,988	$0	$5,527,787
GA GRANTS	$0	$72,255,819	$1,626,106	$43,106,973	$27,522,748	$0	$72,255,819
F&E GA PROJECTS	$0	$23,229,421	$3,021,054	$10,402,265	$8,465,632	$1,340,470	$23,229,421
R&D GA PROJECTS	$0	$7,352,888	$946,239	$3,335,230	$2,651,563	$419,855	$7,352,888
TOTAL CAPITAL PROJECTS	$0	$108,365,914	$5,593,399	$57,467,267	$43,544,922	$1,760,326	$108,365,914
FLIGHT SERVICE STATIONS	$160,722,600	$31,586,667	$16,122,260	$136,888,562	$29,062,477	$10,315,967	$192,389,267
AIR ROUTE TRAFFIC CONTROL CENTERS	$140,957,538	$0	$16,753,709	$38,153,958	$86,049,863	$0	$140,957,530
TERMINAL NAVIGATION FACILITIES	$0	$12,000,047	$1,560,395	$5,100,376	$4,617,540	$641,735	$12,000,047
TERMINAL CONTRL FACILITIES:							
TOWERS	$20,875,697	$25,207,816	$4,944,063	$29,302,004	$7,415,376	$4,421,991	$46,003,513
TRACONS	$115,073,826	$3,201,360	$9,106,452	$00,230,095	$11,312,216	$6,336,263	$116,914,513
TOTAL MINIMUM GA ALLOCATION	$437,629,654	$219,002,240	$59,295,650	$371,752,362	$197,474,235	$25,500,270	$655,951,213
FULL GA SHARE OF BUDGET --DOLLARS			$157,502,755	$740,946,677	$527,415,595	$73,004,043	$1,507,009,070
--PERCENTS			2.00%	13.70%	9.65%	1.34%	27.57%
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET			1.00%	6.00%	3.61%	0.47%	12.00%
FULL GA SHARE OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC --DOLLARS			$137,151,565	$702,572,413	$407,636,470	$65,943,317	$1,393,303,764
--PERCENTS			2.51%	12.05%	0.92%	1.21%	25.40%
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC			1.00%	6.54%	3.37%	0.43%	11.30%

1991

Table 4.16

1991 ALLOCATION

REGULATORY COSTS ALLOCATED TO USERS

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMMUTER	AIR TAXI	GENL AVIATION PISTON	GENL AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	$38,763,481	$0	$0	$0	$0	$0	$0	$0	$0	$0	$6,337,183	$24,426,298
Navaid Maintenance	$264,317,884	$91,685,387	$4,572,634	$6,636,293	$38,538,963	$10,631,987	$33,570,376	$29,189,534	$4,669,159	$2,898,673	$42,884,877	$0
Safety Regulation	$163,467,341	$55,299,858	$2,761,430	$4,005,180	$40,336,684	$11,023,021	$21,251,362	$17,639,353	$2,759,284	$1,243,567	$7,148,483	$0
ARTCCs	$711,233,337	$284,722,394	$15,531,398	$19,497,421	$78,354,367	$23,186,611	$44,678,486	$114,284,845	$0	$4,868,888	$134,997,726	$0
Towers	$151,435,748	$13,762,284	$989,876	$1,511,824	$16,749,674	$12,929,378	$54,841,218	$19,392,198	$11,564,898	$3,388,615	$16,386,680	$0
TRACONs	$799,616,387	$272,888,582	$11,874,266	$20,988,537	$162,298,597	$22,488,887	$163,161,185	$27,692,868	$15,511,483	$4,586,892	$98,221,896	$0
FSSs	$234,455,544	$9,747,448	$431,849	$758,641	$13,982,824	$15,818,374	$137,143,864	$21,819,742	$18,888,288	$3,287,948	$22,353,374	$0
TOTAL OPS BUDGET	$2,355,289,553	$728,817,866	$36,161,452	$53,397,896	$342,252,389	$95,198,257	$454,646,484	$229,217,725	$45,384,385	$18,425,782	$328,258,858	$24,426,298
F&E	$1,414,688,888	$725,886,833	$36,987,396	$52,888,571	$279,959,511	$27,858,983	$57,993,155	$188,487,977	$6,678,528	$5,884,282	$122,711,653	$0
R&D	$237,888,888	$114,568,968	$5,749,243	$8,272,988	$47,844,617	$5,481,885	$17,368,888	$16,232,955	$2,178,599	$1,878,268	$19,848,485	$0
AIP GRANTS	$688,888,888	$412,947,162	$38,743,588	$561,175	$81,483,642	$4,998,128	$143,277,139	$189,775,284	$5,921,464	$3,378,633	$7,881,888	$0
TOTAL DIRECT COSTS	$4,886,889,553	$1,981,331,221	$189,561,591	$114,232,638	$758,668,888	$132,728,365	$673,285,578	$455,633,948	$68,866,889	$27,958,965	$477,811,997	$24,426,298
INDIRECT COSTS												
Public Interest	$8,888,168	$0	$0	$0	$0	$0	$0	$0	$0	$0	$519,358	$7,488,882
Navaid Maintenance	$188,885,879	$37,429,858	$1,868,374	$2,711,584	$15,746,987	$4,344,221	$14,682,677	$11,926,819	$1,987,814	$857,516	$17,498,836	$0
Safety Regulation	$48,671,882	$17,219,948	$859,881	$1,247,285	$18,993,628	$2,835,468	$6,119,722	$5,812,395	$788,188	$354,964	$3,239,692	$0
ARTCCs	$187,817,692	$77,376,758	$4,228,847	$5,298,662	$19,119,659	$6,279,584	$5,873,266	$31,858,886	$0	$1,183,596	$36,687,282	$0
Towers	$37,981,373	$3,598,719	$258,844	$395,329	$4,379,896	$3,388,921	$12,722,735	$5,878,898	$3,823,918	$865,174	$4,284,955	$0
TRACONs	$288,358,576	$75,547,858	$3,287,393	$5,818,681	$44,938,188	$6,226,853	$24,347,813	$7,666,775	$4,294,358	$1,247,513	$27,192,754	$0
FSSs	$59,949,787	$3,652,763	$161,831	$284,294	$5,239,634	$5,624,999	$23,483,135	$7,876,954	$4,847,388	$1,282,149	$8,376,728	$0
TOTAL OPS BUDGET	$851,856,478	$214,825,128	$18,657,891	$15,747,835	$188,489,992	$28,691,165	$87,149,348	$68,611,919	$14,861,498	$5,638,912	$97,798,796	$7,488,882
F&E	$12,189,853	$4,167,224	$288,814	$381,892	$1,753,179	$483,661	$1,698,984	$1,327,863	$212,485	$95,471	$1,947,248	$0
R&D	$9,382,489	$3,286,939	$168,888	$232,325	$1,349,181	$372,287	$1,384,351	$1,821,874	$163,459	$73,471	$1,498,523	$0
AIP GRANTS	$19,415,666	$5,968,889	$435,218	$32,693	$3,837,534	$225,757	$5,132,197	$4,831,957	$139,778	$97,891	$313,847	$0
TOTAL INDIRECT COSTS	$892,844,398	$228,168,896	$11,468,395	$16,314,745	$186,549,886	$29,772,789	$95,278,888	$74,993,613	$14,577,124	$5,897,745	$101,558,486	$7,488,882
GRAND TOTAL	$5,496,933,951	$2,289,499,313	$121,821,986	$138,547,375	$857,289,965	$162,493,155	$768,564,378	$538,627,553	$74,644,812	$33,856,718	$578,562,483	$31,987,188
USER GROUP PERCENTS	100.00%	48.18%	2.28%	2.37%	15.59%	2.95%	13.98%	9.65%	1.36%	0.62%	10.52%	0.58%

Table 4.17

1991 ALLOCATION
REGULATORY COSTS ALLOCATED TO PUBLIC

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMMUTER	AIR TAXI	GENL AVIATION PISTON	GENL AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	$38,763,481	$0	$0	$0	$0	$0	$0	$0	$0	$0	$6,337,181	$24,426,298
Navaid Maintenance	$264,317,884	$91,685,387	$4,572,634	$6,636,293	$38,538,963	$10,631,987	$33,570,376	$29,189,534	$4,669,159	$2,098,673	$42,804,877	$0
Safety Regulation	$381,229,017	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$381,229,017
ARTCCs	$711,233,337	$284,722,394	$15,531,398	$19,497,421	$78,354,367	$23,106,611	$44,678,486	$114,284,845	$0	$4,868,888	$134,997,726	$0
Towers	$151,435,748	$13,762,284	$989,876	$1,511,824	$16,749,674	$12,929,378	$54,841,218	$19,392,198	$11,564,898	$3,388,615	$16,386,688	$0
TRACONs	$799,616,387	$272,888,582	$11,874,266	$20,968,537	$162,298,597	$22,488,887	$163,161,185	$27,692,868	$15,511,483	$4,586,892	$98,221,896	$0
FSSs	$234,455,544	$9,747,448	$431,849	$758,641	$13,982,824	$15,818,374	$137,143,864	$21,819,742	$18,888,288	$3,287,948	$22,353,374	$0
TOTAL OPS BUDGET	$2,493,851,229	$672,718,098	$33,488,822	$49,392,715	$301,915,625	$84,167,236	$433,395,842	$211,578,372	$42,545,821	$17,182,216	$321,191,656	$405,655,316
F&E	$1,414,688,888	$725,886,833	$36,987,396	$52,888,571	$279,959,511	$27,858,983	$57,993,155	$188,487,977	$6,678,528	$5,884,282	$122,711,653	$0
R&D	$237,888,888	$187,591,171	$5,481,334	$7,768,866	$44,112,381	$4,672,158	$14,727,846	$14,812,878	$1,815,346	$918,598	$15,791,597	$28,197,448
AIP GRANTS	$888,888,888	$412,947,162	$38,743,588	$561,175	$81,483,642	$4,998,128	$143,277,139	$189,775,284	$5,921,464	$3,378,633	$7,881,888	$0
TOTAL DIRECT COSTS	$4,944,651,229	$1,919,862,374	$186,452,253	$189,722,527	$787,391,159	$128,888,489	$649,393,183	$435,773,782	$56,952,352	$26,555,721	$466,686,786	$345,852,764
INDIRECT COSTS												
Public Interest	$5,954,888	$0	$0	$0	$0	$0	$0	$0	$0	$0	$386,524	$5,567,476
Navaid Maintenance	$81,289,365	$27,988,472	$1,392,699	$2,821,233	$11,737,914	$3,238,212	$11,818,889	$8,898,334	$1,422,998	$639,198	$13,837,195	$0
Safety Regulation	$42,796,146	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$42,796,146
ARTCCs	$153,245,982	$63,349,595	$3,455,674	$4,338,898	$15,653,566	$5,141,129	$4,948,191	$25,427,743	$0	$983,531	$30,836,455	$0
Towers	$38,561,453	$2,889,288	$202,862	$388,687	$3,419,893	$2,639,268	$18,843,714	$3,958,587	$2,368,565	$675,384	$3,344,979	$0
TRACONs	$161,371,657	$68,586,355	$2,632,985	$4,653,838	$35,985,817	$4,986,586	$28,249,178	$6,148,393	$3,439,392	$999,145	$21,778,936	$0
FSSs	$46,621,622	$2,789,841	$123,565	$217,878	$4,888,685	$4,294,927	$18,777,774	$6,814,391	$3,898,293	$917,892	$6,395,984	$0
TOTAL OPS BUDGET	$521,848,224	$157,354,742	$7,886,985	$11,538,839	$78,796,275	$28,388,834	$65,828,866	$58,431,369	$18,312,349	$4,135,158	$74,988,874	$48,363,621
F&E	$9,872,117	$3,188,824	$154,783	$224,637	$1,384,537	$359,891	$1,261,357	$988,861	$156,858	$71,848	$1,448,938	$0
R&D	$6,982,718	$2,386,378	$119,128	$172,888	$1,883,965	$276,978	$971,597	$768,486	$121,635	$54,672	$1,115,895	$0
AIP GRANTS	$18,557,936	$5,699,529	$415,784	$38,839	$2,984,875	$215,389	$4,989,892	$3,857,326	$133,391	$93,527	$297,463	$0
TOTAL INDIRECT COSTS	$556,452,994	$168,541,473	$8,496,513	$11,967,195	$76,889,652	$21,152,284	$72,963,711	$56,837,161	$18,725,425	$4,354,389	$77,841,578	$48,363,621
GRAND TOTAL	$5,501,184,224	$2,087,683,847	$114,948,765	$121,689,723	$783,488,811	$142,848,694	$722,356,894	$491,818,864	$67,677,776	$38,918,118	$544,448,355	$394,216,385
USER GROUP PERCENTS	100.00%	37.95%	2.09%	2.21%	14.24%	2.58%	13.13%	8.94%	1.23%	0.56%	9.90%	7.17%

Table 4.18

MINSYS

1991 MINIMUM GA ALLOCATION

COST CATEGORY	VARIABLE COST	JOINT COST	AIR TAXI	GA-PISTON	GA-TURBO	ROTORCRAFT	TOTAL COST
OPERATIONS OVERHEAD							
GRANT ADMINISTATION	$0	$5,853,368	$662,874	$2,285,809	$1,913,926	$270,751	$5,853,368
AVIATION STANDARDS	$0	$35,365,470	$4,693,727	$14,914,372	$13,848,220	$1,917,152	$35,365,470
TOTAL OVERHEAD	$0	$40,418,838	$5,356,601	$17,120,180	$15,754,146	$2,187,903	$40,418,838
CAPITAL PROJECTS BENEFITING GA:							
CS GRANTS	$0	$5,527,787	$0	$622,799	$4,904,988	$0	$5,527,787
GA GRANTS	$0	$72,255,819	$1,626,186	$43,186,973	$27,522,748	$0	$72,255,819
F&E GA PROJECTS	$0	$23,230,910	$3,060,352	$18,424,541	$8,402,028	$1,343,989	$23,230,910
R&D GA PROJECTS	$0	$7,610,103	$992,729	$3,455,925	$2,725,482	$435,968	$7,610,103
TOTAL CAPITAL PROJECTS	$0	$108,624,618	$5,679,187	$57,610,237	$43,555,238	$1,779,957	$108,624,618
FLIGHT SERVICE STATIONS	$168,247,882	$33,236,826	$16,366,375	$137,200,332	$29,523,849	$10,394,151	$193,484,708
AIR ROUTE TRAFFIC CONTROL CENTERS	$148,276,253	$0	$18,218,114	$39,952,336	$90,105,804	$0	$148,276,253
TERMINAL NAVIGATION FACILITIES	$0	$13,290,137	$1,752,988	$5,759,718	$5,861,424	$716,007	$13,290,137
TERMINAL CONTRL FACILITIES:							
TOWERS	$23,247,240	$29,519,085	$5,841,251	$32,939,605	$8,761,829	$5,224,440	$52,766,325
TRACONS	$133,938,586	$4,111,075	$10,692,444	$102,704,448	$13,166,697	$7,375,885	$136,081,828
TOTAL MINIMUM GA ALLOCATION	$465,709,962	$229,200,571	$63,986,959	$393,286,848	$285,928,186	$27,677,464	$692,941,981
FULL GA SHARE OF BUDGET --DOLLARS			$162,493,155	$768,564,378	$530,627,553	$74,644,812	$1,536,329,898
--PERCENTS			2.95%	13.98%	9.65%	1.36%	27.94%
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET			1.16%	7.15%	3.74%	0.50%	12.60%
FULL GA SHARE OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC --DOLLARS			$142,040,694	$722,355,894	$491,810,864	$67,677,776	$1,423,886,228
--PERCENTS			2.58%	13.13%	8.94%	1.23%	25.88%
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC			1.08%	6.88%	3.49%	0.47%	11.95%

1992

Table 4.19

1992 ALLOCATION
REGULATORY COSTS ALLOCATED TO USERS

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMMUTER	AIR TAXI	GENL AVIATION PISTON	GENL AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	$32,427,289	$0	$0	$0	$0	$0	$0	$0	$0	$0	$6,647,613	$25,779,677
Navaid Maintenance	$241,527,337	$83,141,273	$4,147,981	$6,826,411	$35,922,763	$9,962,829	$31,474,763	$26,784,439	$4,331,675	$1,936,394	$37,798,817	$0
Safety Regulation	$171,853,727	$57,473,436	$2,868,529	$4,164,928	$42,675,966	$11,668,942	$22,348,798	$18,387,541	$2,987,641	$1,383,328	$7,254,618	$0
ARTCCs	$745,859,118	$297,286,268	$16,216,748	$28,357,779	$76,236,289	$25,387,921	$46,982,224	$120,916,881	$0	$4,296,572	$130,178,584	$0
Towers	$160,618,756	$15,245,507	$1,896,559	$1,674,760	$18,441,215	$13,734,864	$57,678,935	$20,680,383	$12,284,521	$3,514,738	$16,347,353	$0
TRACONs	$867,169,569	$289,428,518	$12,594,341	$22,261,316	$176,885,171	$25,662,238	$184,916,732	$31,680,521	$17,788,265	$5,141,934	$181,858,548	$0
FSSs	$233,744,584	$9,645,477	$427,441	$750,832	$13,965,654	$15,186,997	$136,925,242	$21,156,231	$10,871,891	$3,229,899	$21,665,719	$0
TOTAL OPS BUDGET	$2,452,488,372	$752,220,471	$37,351,599	$55,236,826	$363,246,979	$101,523,775	$488,326,695	$239,445,836	$48,895,994	$19,422,865	$329,751,257	$25,779,677
F&E	$1,414,680,000	$721,853,610	$36,652,884	$51,681,764	$285,977,387	$27,984,816	$58,983,338	$181,821,655	$6,761,714	$5,126,670	$119,437,770	$0
R&D	$210,000,000	$100,821,349	$5,057,318	$7,284,492	$42,533,907	$4,982,588	$15,636,451	$14,432,133	$1,949,846	$955,868	$16,346,848	$0
AIP GRANTS	$800,000,000	$412,986,265	$38,741,232	$558,516	$81,627,173	$5,078,521	$143,592,393	$189,383,538	$5,935,747	$3,378,949	$6,865,674	$0
TOTAL DIRECT COSTS	$4,877,000,372	$1,987,881,695	$109,882,232	$114,768,798	$773,385,446	$139,568,980	$698,458,869	$464,283,154	$62,742,501	$28,875,553	$472,341,548	$25,779,677
INDIRECT COSTS												
Public Interest	$7,390,884	$0	$0	$0	$0	$0	$0	$0	$0	$0	$429,673	$6,961,210
Navaid Maintenance	$87,783,885	$29,949,429	$1,494,200	$2,178,854	$12,948,218	$3,588,840	$12,837,161	$9,648,381	$1,560,371	$697,534	$13,616,817	$0
Safety Regulation	$43,790,827	$15,395,297	$768,299	$1,115,727	$10,842,145	$2,591,591	$5,542,683	$4,588,394	$715,269	$320,417	$2,799,886	$0
ARTCCs	$170,656,134	$78,253,882	$3,832,254	$4,810,848	$18,015,728	$5,999,536	$5,581,331	$28,574,484	$0	$1,015,343	$32,653,616	$0
Towers	$35,826,941	$3,389,547	$243,799	$372,351	$4,186,852	$3,053,684	$12,140,241	$4,588,883	$2,731,228	$781,435	$3,634,521	$0
TRACONs	$189,168,837	$69,732,859	$3,834,392	$5,363,484	$42,485,442	$6,182,876	$24,730,862	$7,613,686	$4,264,577	$1,238,861	$24,541,878	$0
FSSs	$52,378,720	$3,129,898	$138,782	$243,648	$4,531,757	$4,982,115	$20,953,521	$6,865,849	$3,527,853	$1,047,828	$7,838,374	$0
TOTAL OPS BUDGET	$586,846,548	$191,858,184	$9,511,645	$14,076,896	$92,835,341	$26,318,643	$80,985,719	$61,781,917	$12,799,297	$5,101,418	$84,784,366	$6,961,210
F&E	$10,732,526	$3,649,265	$182,865	$264,513	$1,576,734	$437,291	$1,512,828	$1,175,632	$198,127	$84,993	$1,659,078	$0
R&D	$7,319,624	$2,488,325	$124,144	$180,364	$1,075,128	$298,176	$1,032,987	$801,628	$129,642	$57,954	$1,131,276	$0
AIP GRANTS	$17,869,353	$5,231,365	$381,880	$27,578	$2,683,138	$200,932	$4,532,684	$3,541,384	$122,833	$85,825	$261,892	$0
TOTAL INDIRECT COSTS	$621,168,851	$203,219,858	$10,199,654	$14,549,351	$97,370,342	$27,255,843	$87,984,138	$67,300,561	$13,241,900	$5,338,182	$87,756,613	$6,961,210
GRAND TOTAL	$5,498,168,423	$2,190,220,753	$120,081,886	$129,318,149	$870,755,787	$166,823,943	$786,443,007	$531,583,715	$75,984,401	$34,205,735	$560,098,161	$32,740,887
USER GROUP PERCENTS	100.00%	39.84%	2.18%	2.35%	15.84%	3.03%	14.30%	9.67%	1.38%	0.62%	10.19%	0.60%

Table 4.20

1992 ALLOCATION

REGULATORY COSTS ALLOCATED TO PUBLIC

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMMUTER	AIR TAXI	GENL AVIATION PISTON	GENL AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	$32,427,289	$0	$0	$0	$0	$0	$0	$0	$0	$0	$6,647,613	$25,779,677
Navaid Maintenance	$241,527,337	$83,141,273	$4,147,981	$6,826,411	$35,922,763	$9,962,820	$31,474,763	$26,784,439	$4,331,675	$1,936,394	$37,798,817	$0
Safety Regulation	$294,722,681	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$294,722,681
ARTCCs	$745,859,110	$297,286,268	$16,216,748	$20,357,779	$76,236,209	$25,387,921	$46,982,224	$120,916,881	$0	$4,296,572	$138,178,588	$0
Towers	$160,618,756	$15,245,587	$1,096,559	$1,674,760	$18,441,215	$13,734,864	$57,678,935	$20,680,383	$12,284,521	$3,514,738	$16,347,353	$0
TRACONs	$867,169,569	$289,428,510	$12,594,341	$22,261,316	$176,805,171	$25,662,238	$184,916,732	$31,688,521	$17,788,265	$5,141,934	$181,858,548	$0
FSSs	$233,744,584	$9,645,477	$427,441	$758,832	$13,965,654	$15,186,997	$136,925,242	$21,156,231	$18,871,891	$3,229,899	$21,665,719	$0
TOTAL OPS BUDGET	$2,576,069,326	$694,747,835	$34,483,070	$51,871,098	$320,571,012	$89,854,833	$457,977,897	$221,958,295	$45,188,353	$18,118,737	$322,496,638	$320,502,358
F&E	$1,414,600,000	$721,053,610	$36,652,084	$51,681,764	$285,977,387	$27,984,816	$58,903,338	$101,821,655	$6,761,714	$5,126,678	$119,437,778	$0
R&D	$210,000,000	$94,686,478	$4,751,244	$6,839,813	$39,883,220	$4,247,447	$13,239,444	$12,455,749	$1,629,418	$812,985	$13,357,729	$17,896,473
AIP GRANTS	$800,000,000	$412,986,265	$38,741,232	$558,516	$81,627,173	$5,078,521	$143,592,393	$109,383,538	$5,935,747	$3,378,949	$6,885,674	$0
TOTAL DIRECT COSTS	$5,000,669,326	$1,923,393,388	$186,627,638	$110,151,190	$728,058,792	$127,164,816	$673,713,864	$443,919,238	$59,515,231	$27,429,342	$462,297,811	$338,396,831
INDIRECT COSTS												
Public Interest	$5,501,844	$0	$0	$0	$0	$0	$0	$0	$0	$0	$319,853	$5,181,991
Navaid Maintenance	$65,434,381	$22,317,648	$1,113,444	$1,617,672	$9,642,760	$2,674,323	$9,849,897	$7,189,756	$1,162,753	$519,787	$10,146,349	$0
Safety Regulation	$38,489,585	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$38,489,585
ARTCCs	$139,683,822	$57,424,373	$3,132,457	$3,932,347	$14,725,929	$4,903,978	$4,607,452	$23,356,516	$0	$829,934	$26,698,835	$0
Towers	$28,118,768	$2,645,842	$190,249	$290,565	$3,199,486	$2,382,951	$10,259,868	$3,574,881	$2,131,322	$609,795	$2,836,289	$0
TRACONs	$151,811,242	$55,726,638	$2,424,918	$4,286,199	$33,888,888	$4,941,812	$20,458,189	$6,884,372	$3,408,813	$990,829	$19,611,878	$0
FSSs	$40,679,531	$2,398,761	$105,947	$186,184	$3,461,575	$3,744,472	$16,681,558	$5,243,856	$2,694,744	$800,376	$5,370,139	$0
TOTAL OPS BUDGET	$469,639,884	$140,584,454	$6,967,015	$10,312,887	$64,917,838	$18,646,737	$61,848,876	$45,448,581	$9,396,832	$3,749,920	$64,975,256	$43,671,496
F&E	$7,989,394	$2,716,120	$135,589	$196,875	$1,173,551	$325,473	$1,127,244	$875,814	$141,518	$63,268	$1,234,839	$0
R&D	$5,448,798	$1,852,133	$92,484	$134,258	$800,249	$221,941	$769,469	$596,675	$96,496	$43,137	$842,842	$0
AIP GRANTS	$16,389,394	$5,819,845	$366,395	$26,192	$2,577,386	$192,648	$4,355,151	$3,482,754	$117,793	$82,377	$249,748	$0
TOTAL INDIRECT COSTS	$499,466,671	$150,891,753	$7,561,324	$10,670,204	$69,468,936	$19,386,791	$67,299,948	$50,323,824	$9,752,632	$3,938,694	$67,301,878	$43,671,496
GRAND TOTAL	$5,500,135,997	$2,073,485,141	$194,188,955	$120,821,394	$797,527,728	$146,551,607	$741,013,804	$494,242,254	$69,267,863	$31,368,036	$529,599,689	$382,070,327
USER GROUP PERCENTS	100.00%	37.70%	2.80%	2.20%	14.50%	2.66%	13.47%	8.99%	1.26%	0.57%	9.63%	6.95%

Table 4.21

MINSYS

1992 MINIMUM GA ALLOCATION

COST CATEGORY	VARIABLE COST	JOINT COST	AIR TAXI	GA-PISTON	GA-TURBO	ROTORCRAFT	TOTAL COST
OPERATIONS OVERHEAD							
GRANT ADMINISTATION	$0	$4,536,665	$683,418	$1,989,932	$1,698,226	$245,089	$4,536,665
AVIATION STANDARDS	$0	$37,088,621	$4,981,641	$15,682,221	$14,321,378	$2,823,381	$37,088,621
TOTAL OVERHEAD	$0	$41,545,286	$5,585,059	$17,672,153	$16,019,604	$2,268,470	$41,545,286
CAPITAL PROJECTS BENEFITING GA:							
CS GRANTS	$0	$5,527,787	$0	$622,799	$4,904,988	$0	$5,527,787
GA GRANTS	$0	$72,255,819	$1,626,186	$43,186,973	$27,522,748	$0	$72,255,819
F&E GA PROJECTS	$0	$23,232,388	$3,188,463	$10,448,487	$8,335,486	$1,348,832	$23,232,388
R&D GA PROJECTS	$0	$6,743,555	$891,168	$3,869,184	$2,395,829	$387,462	$6,743,555
TOTAL CAPITAL PROJECTS	$0	$107,759,548	$5,617,728	$57,247,362	$43,158,963	$1,735,494	$107,759,548
FLIGHT SERVICE STATIONS	$158,963,924	$34,970,985	$16,568,178	$137,823,733	$29,905,798	$10,437,281	$193,934,909
AIR ROUTE TRAFFIC CONTROL CENTERS	$155,906,389	$0	$19,798,758	$41,810,644	$94,296,907	$0	$155,906,389
TERMINAL NAVIGATION FACILITIES	$0	$14,709,186	$1,969,875	$6,398,600	$5,541,656	$793,774	$14,709,186
TERMINAL CONTRL FACILITIES:							
TOWERS	$25,856,902	$34,543,879	$6,914,439	$36,938,582	$10,378,655	$6,184,304	$60,399,980
TRACONS	$155,694,624	$5,265,826	$12,429,249	$119,387,824	$15,385,402	$8,572,949	$158,185,869
TOTAL MINIMUN GA ALLOCATION	$496,421,759	$238,793,029	$68,882,486	$416,478,098	$214,598,986	$29,998,192	$732,448,208
FULL GA SHARE OF BUDGET --DOLLARS			$166,823,943	$786,443,087	$531,583,715	$75,384,401	$1,560,835,065
--PERCENTS			3.03%	14.30%	9.67%	1.38%	28.39%
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET			1.25%	7.57%	3.90%	0.55%	13.32%
FULL GA SHARE OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC --DOLLARS			$146,551,687	$741,013,884	$494,242,254	$69,267,863	$1,451,074,729
--PERCENTS			2.66%	13.47%	8.99%	1.26%	26.38%
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC			1.16%	7.29%	3.64%	0.51%	12.64%

1993

Table 4.22

1993 ALLOCATION

REGULATORY COSTS ALLOCATED TO USERS

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMMUTER	AIR TAXI	GENL AVIATION PISTON	GENL AVIATION TURBINE	MOTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	$33,931,916	$0	$0	$0	$0	$0	$0	$0	$0	$0	$6,956,062	$26,975,854
Navaid Maintenance	$252,734,205	$87,720,130	$4,369,250	$6,362,293	$38,378,931	$10,511,915	$32,738,836	$27,821,332	$4,495,681	$2,810,587	$38,326,210	$0
Safety Regulation	$178,990,620	$68,118,584	$2,995,655	$4,359,334	$45,825,840	$12,247,848	$23,386,639	$19,176,672	$3,829,787	$1,358,610	$7,372,530	$0
ARTCCs	$789,971,324	$315,814,149	$17,183,791	$21,571,761	$83,887,191	$27,985,864	$49,790,189	$127,691,961	$0	$4,537,316	$142,469,183	$0
Towers	$168,121,839	$15,431,575	$1,189,942	$1,695,200	$19,280,394	$14,343,895	$61,582,489	$21,512,561	$12,828,526	$3,670,384	$16,747,672	$0
TRACONs	$919,883,989	$312,476,975	$13,597,284	$24,834,883	$188,392,518	$26,703,209	$194,682,589	$32,882,385	$18,418,278	$5,358,515	$183,626,248	$0
FSSs	$247,281,325	$18,216,769	$452,497	$795,881	$14,867,726	$15,981,398	$145,244,883	$22,377,258	$11,494,994	$3,414,513	$22,436,366	$0
TOTAL OPS BUDGET	$2,590,915,218	$800,978,182	$39,788,419	$58,817,672	$389,752,681	$107,692,530	$586,984,666	$251,462,178	$50,267,897	$20,341,845	$337,934,183	$26,975,854
F&E	$1,480,237,448	$753,762,809	$38,266,545	$54,852,682	$303,649,855	$29,926,579	$61,483,835	$185,258,146	$7,824,812	$5,336,739	$121,565,118	$0
R&D	$219,744,000	$185,534,125	$5,285,594	$7,629,510	$45,122,091	$5,278,822	$16,264,866	$15,018,394	$2,825,427	$994,866	$16,591,186	$0
AIP GRANTS	$837,120,000	$432,134,941	$32,178,354	$589,856	$85,807,586	$5,382,254	$158,174,579	$114,182,768	$6,207,270	$3,518,113	$6,968,359	$0
TOTAL DIRECT COSTS	$5,128,016,658	$2,092,409,256	$115,438,913	$121,869,639	$824,332,053	$148,288,185	$734,827,146	$485,913,477	$65,524,607	$30,182,762	$483,858,766	$26,975,854
INDIRECT COSTS												
Public Interest	$7,398,236	$0	$0	$0	$0	$0	$0	$0	$0	$0	$429,636	$6,968,600
Navaid Maintenance	$87,722,486	$30,284,793	$1,504,470	$2,198,737	$13,215,078	$3,619,582	$11,270,983	$9,579,758	$1,547,976	$692,281	$13,196,916	$0
Safety Regulation	$43,857,349	$15,437,146	$769,129	$1,119,460	$10,159,893	$2,685,690	$5,526,788	$4,488,412	$712,720	$319,489	$2,718,784	$0
ARTCCs	$172,371,289	$70,985,510	$3,872,288	$4,860,996	$18,885,172	$6,288,327	$5,578,278	$28,774,197	$0	$1,022,442	$32,184,068	$0
Towers	$34,985,624	$3,270,456	$235,233	$359,268	$4,086,147	$3,039,772	$12,389,492	$4,559,216	$2,718,785	$777,875	$3,549,388	$0
TRACONs	$191,424,957	$71,772,873	$3,123,127	$5,520,330	$43,271,417	$6,133,395	$24,790,898	$7,552,675	$4,238,447	$1,228,947	$23,801,658	$0
FSSs	$52,913,441	$3,162,794	$140,879	$246,188	$4,682,587	$4,947,345	$21,326,182	$6,927,384	$3,558,493	$1,857,827	$6,945,682	$0
TOTAL OPS BUDGET	$590,665,382	$194,832,772	$9,644,245	$14,296,898	$94,228,284	$26,634,110	$81,582,445	$61,881,562	$12,768,421	$5,097,988	$82,745,984	$6,968,600
F&E	$10,731,585	$3,688,355	$183,315	$266,934	$1,610,213	$441,034	$1,581,582	$1,167,262	$188,616	$84,352	$1,668,881	$0
R&D	$7,318,983	$2,589,560	$124,999	$182,017	$1,097,972	$300,732	$1,825,174	$795,933	$128,613	$57,518	$1,096,464	$0
AIP GRANTS	$17,875,426	$5,236,558	$382,068	$27,847	$2,698,216	$283,464	$4,536,728	$3,533,038	$122,713	$85,242	$255,553	$0
TOTAL INDIRECT COSTS	$625,791,297	$206,259,246	$10,334,627	$14,773,696	$99,626,686	$27,579,341	$88,639,849	$67,377,795	$13,208,363	$5,325,091	$85,786,882	$6,968,600
GRAND TOTAL	$5,753,807,955	$2,298,668,502	$125,765,540	$135,863,335	$923,958,739	$175,859,526	$823,466,995	$553,291,272	$78,732,970	$35,507,853	$568,756,768	$33,936,454
USER GROUP PERCENTS	100.00%	39.95%	2.19%	2.36%	16.06%	3.06%	14.31%	9.62%	1.37%	0.62%	9.88%	0.59%

Table 4.23

1993 ALLOCATION

REGULATORY COSTS ALLOCATED TO PUBLIC

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMMUTER	AIR TAXI	GEN'L AVIATION PISTON	GEN'L AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	$33,931,916	$0	$0	$0	$0	$0	$0	$0	$0	$0	$6,956,062	$26,975,854
Navaid Maintenance	$252,734,205	$87,720,138	$4,369,258	$6,362,293	$38,378,931	$10,511,915	$32,738,836	$27,821,332	$4,495,681	$2,810,587	$38,326,210	$0
Safety Regulation	$383,566,870	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$383,566,870
ARTCCs	$789,971,324	$315,814,149	$17,183,791	$21,571,761	$83,887,191	$27,985,864	$49,790,189	$127,691,961	$0	$4,537,316	$142,469,183	$0
Towers	$168,121,839	$15,431,575	$1,189,942	$1,695,208	$19,288,394	$14,343,895	$61,582,489	$21,512,561	$12,828,526	$3,670,384	$16,747,672	$0
TRACONs	$919,883,989	$312,476,975	$13,597,284	$24,834,883	$188,392,518	$26,703,209	$194,482,589	$32,882,385	$18,418,270	$5,350,515	$183,626,240	$0
FSSs	$247,281,325	$18,216,769	$452,497	$795,001	$14,867,726	$15,981,398	$145,244,883	$22,377,258	$11,494,994	$3,414,513	$22,436,366	$0
TOTAL OPS BUDGET	$2,715,490,668	$748,859,598	$36,712,765	$54,458,338	$344,726,761	$95,445,482	$483,678,826	$232,285,498	$47,237,390	$18,983,235	$338,561,653	$338,541,924
F&E	$1,480,237,440	$753,762,809	$38,266,545	$54,852,682	$383,649,855	$29,926,579	$61,483,835	$185,250,146	$7,824,812	$5,336,739	$121,565,118	$0
R&D	$219,744,000	$99,860,670	$4,963,158	$7,159,994	$42,289,853	$4,583,078	$13,772,983	$12,965,272	$1,693,667	$845,697	$13,762,759	$18,726,869
AIP GRANTS	$837,120,000	$432,134,941	$32,178,354	$589,856	$85,887,586	$5,382,254	$158,174,579	$114,182,768	$6,287,278	$3,518,113	$6,960,359	$0
TOTAL DIRECT COSTS	$5,252,592,108	$2,025,817,218	$112,112,823	$116,268,789	$776,473,975	$135,257,393	$709,028,624	$464,683,683	$62,163,139	$28,675,783	$472,849,888	$349,268,793
INDIRECT COSTS												
Public Interest	$5,581,622	$0	$0	$0	$0	$0	$0	$0	$0	$0	$319,840	$5,181,783
Navaid Maintenance	$65,436,944	$22,585,713	$1,128,987	$1,632,327	$9,846,682	$2,696,965	$8,994,135	$7,137,916	$1,153,483	$515,821	$9,833,876	$0
Safety Regulation	$38,581,337	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$38,581,337
ARTCCs	$140,979,767	$58,013,876	$3,164,614	$3,972,715	$15,434,164	$5,139,221	$4,665,963	$23,516,185	$0	$835,685	$26,237,584	$0
Towers	$28,888,771	$2,554,823	$183,782	$284,566	$3,191,827	$2,373,873	$10,434,595	$3,560,465	$2,123,242	$607,472	$2,771,846	$0
TRACONs	$153,644,835	$57,362,957	$2,496,121	$4,412,857	$34,584,154	$4,982,841	$20,464,588	$6,036,384	$3,381,134	$982,221	$19,823,186	$0
FSSs	$41,896,292	$2,417,193	$187,057	$188,898	$3,517,566	$3,781,851	$16,955,397	$5,294,252	$2,719,689	$887,842	$5,388,236	$0
TOTAL OPS BUDGET	$473,321,569	$142,853,762	$7,872,481	$10,485,755	$66,573,514	$18,893,151	$61,514,671	$45,545,121	$9,377,348	$3,748,968	$63,493,687	$43,763,119
F&E	$7,989,073	$2,739,421	$136,448	$198,689	$1,198,548	$328,278	$1,118,789	$868,835	$148,394	$62,786	$1,196,893	$0
R&D	$5,448,578	$1,868,843	$93,845	$135,488	$817,298	$223,856	$763,653	$592,469	$95,736	$42,815	$816,175	$0
AIP GRANTS	$16,420,359	$5,831,843	$367,228	$26,498	$2,595,694	$195,379	$4,359,928	$3,399,855	$117,864	$81,943	$244,142	$0
TOTAL INDIRECT COSTS	$503,179,579	$152,493,869	$7,669,195	$10,846,438	$71,185,045	$19,640,664	$67,757,033	$50,406,288	$9,731,342	$3,936,585	$65,750,898	$43,763,119
GRAND TOTAL	$5,755,771,687	$2,178,310,287	$119,782,017	$127,107,218	$847,659,020	$154,898,058	$776,785,657	$515,089,963	$71,894,481	$32,612,288	$538,600,786	$393,031,912
USER GROUP PERCENTS	100.00%	37.85%	2.08%	2.21%	14.73%	2.69%	13.50%	8.95%	1.25%	0.57%	9.36%	6.83%

Table 4.24

MINSYS

1993 MINIMUM GA ALLOCATION

COST CATEGORY	VARIABLE COST	JOINT COST	AIR TAXI	GA-PISTON	GA-TURBO	ROTORCRAFT	TOTAL COST
OPERATIONS OVERHEAD							
GRANT ADMINISTATION	$0	$4,570,282	$617,043	$2,002,036	$1,704,525	$246,598	$4,570,282
AVIATION STANDARDS	$0	$38,728,556	$5,290,107	$16,395,547	$14,928,737	$2,114,165	$38,728,556
TOTAL OVERHEAD	$0	$43,298,758	$5,907,150	$18,397,583	$16,633,262	$2,360,763	$43,298,758
CAPITAL PROJECTS							
BENEFITIING GA:							
CS GRANTS	$0	$5,784,276	$0	$651,696	$5,132,579	$0	$5,784,276
GA GRANTS	$0	$75,688,489	$1,701,557	$45,107,136	$28,799,795	$0	$75,688,489
F&E GA PROJECTS	$0	$24,311,853	$3,289,198	$10,910,627	$8,705,346	$1,406,682	$24,311,853
R&D GA PROJECTS	$0	$7,856,849	$945,578	$3,204,267	$2,502,611	$404,393	$7,856,849
TOTAL CAPITAL PROJECTS	$0	$112,761,466	$5,936,333	$59,873,727	$45,148,332	$1,811,074	$112,761,466
FLIGHT SERVICE STATIONS	$169,044,505	$36,213,115	$17,562,520	$145,278,853	$31,375,998	$11,040,249	$205,257,620
AIR ROUTE TRAFFIC CONTROL CENTERS	$166,540,917	$0	$21,899,746	$44,432,072	$100,209,100	$0	$166,540,917
TERMINAL NAVIGATION FACILITIES	$0	$16,279,853	$2,213,295	$7,068,085	$6,114,822	$884,532	$16,279,853
TERMINAL CONTRL FACILITIES:							
TOWERS	$27,671,419	$35,780,618	$7,164,960	$39,132,388	$10,746,399	$6,488,370	$63,452,038
TRACONS	$166,375,137	$5,451,659	$13,997,265	$130,938,800	$17,236,260	$9,654,472	$174,631,425
TOTAL MINIMUM GA ALLOCATION	$529,631,979	$249,785,471	$74,681,268	$445,121,349	$227,455,372	$32,159,461	$782,222,078
FULL GA SHARE OF BUDGET --DOLLARS			$175,859,526	$823,466,995	$553,291,272	$78,732,970	$1,631,350,764
--PERCENTS			3.06%	14.31%	9.62%	1.37%	28.35%
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET			1.30%	7.74%	3.95%	0.56%	13.59%
FULL GA SHARE OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC --DOLLARS			$154,898,858	$776,785,657	$515,089,963	$71,894,481	$1,518,668,159
--PERCENTS			2.69%	13.50%	8.95%	1.25%	26.39%
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC			1.21%	7.45%	3.69%	0.52%	12.92%

1994

Table 4.25

1994 ALLOCATION

REGULATORY COSTS ALLOCATED TO USERS

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMMUTER	AIR TAXI	GENL AVIATION PISTON	GENL AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	$35,586,356	$0	$0	$0	$0	$0	$0	$0	$0	$0	$7,278,823	$28,227,533
Navaid Maintenance	$264,461,073	$92,536,133	$4,601,550	$6,715,861	$48,991,424	$11,891,748	$34,039,389	$28,887,625	$4,664,848	$2,686,693	$30,646,682	$0
Safety Regulation	$187,295,785	$62,884,539	$3,128,351	$4,562,786	$47,500,565	$12,858,585	$24,301,784	$19,996,596	$3,156,442	$1,416,824	$7,490,192	$0
ARTCCs	$837,822,797	$333,822,666	$18,209,782	$22,859,744	$92,136,526	$38,675,698	$52,767,899	$134,856,238	$0	$4,791,886	$146,983,174	$0
Towers	$176,818,158	$15,619,588	$1,123,468	$1,715,845	$20,157,239	$14,977,873	$65,573,152	$22,464,636	$13,396,274	$3,832,823	$17,157,350	$0
TRACONs	$976,389,827	$337,458,691	$14,684,883	$25,954,930	$201,785,369	$27,793,812	$204,382,656	$34,225,356	$19,178,582	$5,569,839	$105,452,670	$0
FSSs	$261,631,854	$18,823,834	$479,873	$841,857	$15,829,728	$16,908,186	$154,875,838	$23,671,242	$12,155,884	$3,618,954	$23,236,866	$0
TOTAL OPS BUDGET	$2,738,325,850	$853,136,572	$42,226,218	$62,651,823	$418,320,849	$114,385,814	$535,139,918	$264,181,685	$52,542,351	$21,387,418	$346,365,677	$28,227,533
F&E	$1,548,920,457	$787,895,270	$39,948,822	$56,528,520	$322,388,900	$32,006,939	$63,989,327	$109,620,827	$7,295,971	$5,553,664	$123,693,018	$0
R&D	$229,948,122	$110,462,968	$5,523,927	$7,998,635	$47,861,685	$5,593,385	$16,913,377	$15,623,572	$2,184,173	$1,833,473	$16,832,927	$0
AIP GRANTS	$875,962,368	$452,258,298	$33,665,863	$622,858	$98,201,191	$5,785,658	$157,854,859	$119,198,539	$6,491,891	$3,654,874	$7,117,145	$0
TOTAL DIRECT COSTS	$5,393,147,997	$2,203,753,108	$121,364,830	$127,793,837	$878,772,626	$157,611,788	$773,897,473	$508,535,822	$68,433,585	$31,549,429	$494,888,766	$28,227,533
INDIRECT COSTS												
Public Interest	$7,360,987	$0	$0	$0	$0	$0	$0	$0	$0	$0	$427,935	$6,933,052
Navaid Maintenance	$87,481,715	$30,339,396	$1,588,689	$2,281,899	$13,439,669	$3,636,680	$11,854,419	$9,471,252	$1,529,188	$684,155	$12,736,457	$0
Safety Regulation	$43,756,972	$15,419,746	$767,082	$1,118,987	$10,238,391	$2,610,755	$5,488,970	$4,458,557	$787,345	$317,131	$2,629,669	$0
ARTCCs	$173,498,122	$71,448,336	$3,897,454	$4,892,698	$19,720,055	$6,565,543	$5,635,238	$28,863,389	$0	$1,025,611	$31,441,886	$0
Towers	$34,815,786	$3,142,713	$226,045	$345,235	$4,055,724	$3,013,613	$12,593,698	$4,519,982	$2,695,389	$771,181	$3,452,134	$0
TRACONs	$193,125,947	$73,594,894	$3,202,446	$5,660,532	$43,990,887	$6,061,575	$24,758,453	$7,464,235	$4,188,918	$1,214,556	$22,998,258	$0
FSSs	$53,260,187	$3,183,387	$148,910	$247,616	$4,656,809	$4,973,217	$21,624,576	$6,962,439	$3,575,184	$1,062,892	$6,834,676	$0
TOTAL OPS BUDGET	$593,211,556	$197,128,472	$9,742,546	$14,466,878	$96,180,436	$26,861,383	$81,955,345	$61,739,855	$12,688,008	$5,074,726	$80,520,534	$6,933,052
F&E	$10,689,113	$3,696,744	$183,828	$268,293	$1,637,575	$443,106	$1,483,951	$1,154,038	$186,325	$83,362	$1,551,891	$0
R&D	$7,298,016	$2,528,771	$125,351	$182,946	$1,116,645	$382,158	$1,013,114	$786,926	$127,053	$56,843	$1,058,218	$0
AIP GRANTS	$17,815,524	$5,221,071	$388,837	$27,975	$2,782,978	$285,255	$4,511,552	$3,511,253	$122,098	$84,325	$248,187	$0
TOTAL INDIRECT COSTS	$628,206,209	$208,567,058	$10,432,562	$14,946,093	$101,557,626	$27,811,813	$88,963,963	$67,192,072	$13,123,484	$5,299,256	$83,379,230	$6,933,052
GRAND TOTAL	$6,021,354,206	$2,412,320,166	$131,797,392	$142,739,129	$980,330,252	$185,423,602	$862,861,436	$575,727,894	$81,557,068	$36,848,685	$577,387,996	$35,160,585
USER GROUP PERCENTS	100.00%	40.06%	2.19%	2.37%	16.28%	3.08%	14.32%	9.56%	1.35%	0.61%	9.59%	0.58%

Table 4.26

1994 ALLOCATION

REGULATORY COSTS ALLOCATED TO PUBLIC

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMMUTER	AIR TAXI	GENL AVIATION PISTON	GENL AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	$35,506,356	$0	$0	$0	$0	$0	$0	$0	$0	$0	$7,278,823	$28,227,533
Navaid Maintenance	$264,461,073	$92,536,133	$4,601,550	$6,715,861	$40,991,424	$11,091,748	$34,039,389	$28,887,625	$4,664,848	$2,886,693	$38,846,682	$0
Safety Regulation	$312,337,487	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$312,337,487
ARTCCs	$837,822,797	$333,822,666	$18,209,782	$22,859,744	$92,136,526	$38,675,690	$52,767,899	$134,856,238	$0	$4,791,886	$146,983,174	$0
Towers	$176,818,158	$15,619,588	$1,123,468	$1,715,845	$20,157,239	$14,977,873	$65,573,152	$22,464,636	$13,396,274	$3,832,823	$17,157,358	$0
TRACONs	$976,389,827	$337,458,691	$14,684,083	$25,954,938	$201,785,369	$27,793,812	$284,382,656	$34,225,356	$19,178,582	$5,569,839	$185,452,678	$0
FSSs	$261,631,854	$18,823,834	$479,873	$841,857	$15,829,728	$16,988,186	$154,875,838	$23,671,242	$12,155,864	$3,618,954	$23,236,866	$0
TOTAL OPS BUDGET	$2,863,366,753	$798,252,832	$39,097,867	$58,888,237	$370,820,285	$181,447,309	$510,638,126	$244,185,088	$49,385,908	$19,891,394	$338,875,485	$340,565,021
F&E	$1,548,920,457	$787,895,278	$39,948,822	$56,528,528	$322,388,980	$32,806,939	$63,989,327	$189,620,827	$7,295,971	$5,553,664	$123,693,818	$0
R&D	$229,948,122	$103,633,353	$5,184,318	$7,494,972	$44,836,319	$4,774,768	$14,323,819	$13,491,525	$1,759,943	$879,465	$13,965,859	$19,595,796
AIP GRANTS	$875,962,368	$452,258,298	$33,665,863	$622,858	$90,201,191	$5,785,658	$157,854,859	$119,198,539	$6,491,891	$3,654,874	$7,117,145	$0
TOTAL DIRECT COSTS	$5,518,189,699	$2,134,838,953	$117,896,863	$122,734,587	$828,246,695	$143,934,659	$746,206,131	$486,487,179	$64,932,913	$29,979,396	$483,651,586	$360,160,817
INDIRECT COSTS												
Public Interest	$5,480,097	$0	$0	$0	$0	$0	$0	$0	$0	$0	$318,589	$5,161,508
Navaid Maintenance	$65,186,833	$22,683,860	$1,124,823	$1,648,488	$10,013,081	$2,709,388	$8,900,783	$7,056,398	$1,139,298	$509,718	$9,489,884	$0
Safety Regulation	$38,527,974	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$38,527,974
ARTCCs	$141,866,786	$58,382,685	$3,184,728	$3,997,965	$16,113,856	$5,364,984	$4,787,463	$23,585,151	$0	$838,858	$25,692,854	$0
Towers	$27,939,298	$2,456,384	$176,674	$269,832	$3,169,981	$2,355,481	$10,570,858	$3,532,760	$2,106,681	$602,745	$2,698,143	$0
TRACONs	$154,981,828	$58,825,928	$2,559,782	$4,524,581	$35,162,191	$4,845,143	$20,482,192	$5,966,319	$3,341,888	$970,829	$18,382,986	$0
FSSs	$41,368,442	$2,434,383	$187,752	$189,349	$3,560,483	$3,882,968	$17,169,876	$5,324,186	$2,733,986	$812,171	$5,226,487	$0
TOTAL OPS BUDGET	$475,342,451	$144,783,888	$7,152,968	$10,622,214	$68,019,352	$19,877,885	$61,750,364	$45,464,734	$9,321,766	$3,733,512	$61,887,262	$43,689,483
F&E	$7,957,815	$2,751,776	$136,838	$199,712	$1,218,975	$329,839	$1,185,694	$859,848	$138,696	$62,853	$1,155,193	$0
R&D	$5,427,268	$1,876,487	$93,312	$136,187	$831,241	$224,923	$754,672	$585,795	$94,588	$42,315	$787,748	$0
AIP GRANTS	$16,389,138	$5,825,186	$366,634	$26,676	$2,684,387	$197,438	$4,348,346	$3,384,242	$117,478	$81,194	$237,566	$0
TOTAL INDIRECT COSTS	$505,116,656	$154,356,448	$7,749,744	$10,984,789	$72,673,955	$19,829,997	$67,959,076	$50,293,811	$9,672,512	$3,919,874	$63,987,769	$43,689,483
GRAND TOTAL	$6,023,306,356	$2,288,395,401	$125,646,606	$133,719,376	$900,920,650	$163,764,656	$814,165,207	$536,780,991	$74,605,424	$33,898,270	$547,639,275	$403,850,299
USER GROUP PERCENTS	100.00%	37.99%	2.09%	2.22%	14.96%	2.72%	13.52%	8.91%	1.24%	0.56%	9.09%	6.70%

Table 4.27

MINSYS

1994 MINIMUM GA ALLOCATION

COST CATEGORY	VARIABLE COST	JOINT COST	AIR TAXI	GA-PISTON	GA-TURBO	ROTORCRAFT	TOTAL COST
OPERATIONS OVERHEAD							
GRANT ADMINISTATION	$0	$4,587,600	$628,881	$2,006,966	$1,704,525	$247,229	$4,587,600
AVIATION STANDARDS	$0	$40,528,489	$5,619,056	$17,140,551	$15,559,885	$2,208,998	$40,528,489
TOTAL OVERHEAD	$0	$45,116,089	$6,247,936	$19,147,517	$17,264,409	$2,456,227	$45,116,089
CAPITAL PROJECTS							
BENEFITIING GA:							
CS GRANTS	$0	$6,852,666	$0	$681,935	$5,370,731	$0	$6,852,666
GA GRANTS	$0	$79,116,722	$1,788,510	$47,200,188	$30,136,185	$0	$79,116,722
F&E GA PROJECTS	$0	$25,441,523	$3,490,567	$11,392,264	$9,890,919	$1,467,773	$25,441,523
R&D GA PROJECTS	$0	$7,384,713	$1,003,647	$3,345,114	$2,613,922	$422,031	$7,384,713
TOTAL CAPITAL PROJECTS	$0	$117,995,624	$6,274,723	$62,619,420	$47,211,678	$1,889,804	$117,995,624
FLIGHT SERVICE STATIONS	$179,764,342	$37,499,414	$18,618,471	$154,041,223	$32,924,555	$11,679,507	$217,263,756
AIR ROUTE TRAFFIC CONTROL CENTERS	$177,933,514	$0	$24,223,684	$47,217,858	$106,491,972	$0	$177,933,514
TERMINAL NAVIGATION FACILITIES	$0	$18,018,366	$2,488,426	$7,887,816	$6,744,658	$978,266	$18,018,366
TERMINAL CONTRL FACILITIES:							
TOWERS	$29,613,823	$37,062,145	$7,427,934	$41,463,637	$11,148,822	$6,643,575	$66,675,968
TRACONS	$177,847,614	$5,644,907	$14,938,271	$139,855,711	$18,395,817	$10,383,522	$186,485,699
TOTAL MINIMUM GA ALLOCATION	$565,159,293	$261,336,546	$80,219,445	$472,152,381	$240,173,111	$33,950,902	$829,489,816
FULL GA SHARE OF BUDGET --DOLLARS			$185,423,682	$862,061,436	$575,727,894	$81,557,868	$1,704,770,880
--PERCENTS			3.08%	14.32%	9.56%	1.35%	28.31%
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET			1.33%	7.84%	3.99%	0.56%	13.78%
FULL GA SHARE OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC --DOLLARS			$163,764,656	$814,165,207	$536,700,991	$74,605,424	$1,589,236,278
--PERCENTS			2.72%	13.52%	8.91%	1.24%	26.38%
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC			1.24%	7.55%	3.73%	0.53%	13.10%

1995

Table 4.28

1995 ALLOCATION

REGULATORY COSTS ALLOCATED TO USERS

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMMUTER	AIR TAXI	GENL AVIATION PISTON	GENL AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	$37,153,851	$0	$0	$0	$0	$0	$0	$0	$0	$0	$7,616,561	$29,537,291
Navaid Maintenance	$276,732,866	$97,608,748	$4,845,392	$7,887,989	$43,769,348	$11,784,893	$35,379,387	$29,983,635	$4,837,864	$2,164,974	$39,259,515	$0
Safety Regulation	$195,986,389	$65,776,768	$3,266,859	$4,775,700	$30,106,587	$13,585,469	$25,335,477	$20,848,341	$3,288,888	$1,475,641	$7,687,535	$0
ARTCCs	$887,231,687	$353,779,695	$19,298,423	$24,226,375	$101,388,992	$33,722,871	$55,923,248	$142,432,729	$0	$5,861,183	$151,486,171	$0
Towers	$184,338,636	$15,809,582	$1,137,125	$1,736,716	$21,873,654	$15,648,517	$69,986,484	$23,458,586	$13,988,945	$4,882,393	$17,576,794	$0
TRACONs	$1,036,992,438	$364,521,283	$15,861,967	$28,837,057	$216,818,793	$28,936,969	$214,884,838	$35,633,841	$19,958,983	$5,798,893	$187,341,814	$0
FSSs	$276,846,323	$11,466,469	$587,262	$891,567	$16,855,728	$17,898,588	$163,458,123	$25,842,656	$12,854,417	$3,819,892	$24,868,429	$0
TOTAL OPS BUDGET	$2,895,272,823	$908,954,455	$44,917,828	$66,755,485	$449,125,823	$121,480,499	$564,879,469	$277,396,988	$54,927,489	$22,321,297	$355,856,839	$29,537,291
F&E	$1,628,798,366	$823,512,887	$41,701,577	$59,113,948	$342,256,819	$34,234,772	$66,664,114	$114,134,829	$7,575,339	$5,777,577	$125,820,191	$0
R&D	$248,689,343	$115,617,514	$5,772,746	$8,368,681	$50,761,185	$5,927,451	$17,582,371	$16,248,831	$2,185,326	$1,874,112	$17,872,866	$0
AIP GRANTS	$916,687,822	$473,317,899	$35,238,839	$657,684	$94,918,988	$6,850,866	$164,246,638	$124,415,826	$6,787,762	$3,885,458	$7,276,828	$0
TOTAL DIRECT COSTS	$5,673,279,554	$2,321,481,875	$127,622,190	$134,895,358	$936,961,855	$167,612,789	$813,372,585	$532,196,795	$71,475,836	$32,978,444	$585,224,344	$29,537,291
INDIRECT COSTS												
Public Interest	$7,299,901	$0	$0	$0	$0	$0	$0	$0	$0	$0	$424,384	$6,875,517
Navaid Maintenance	$86,781,797	$38,336,722	$1,586,867	$2,283,122	$13,684,594	$3,637,921	$11,683,481	$9,319,654	$1,583,479	$672,927	$12,233,909	$0
Safety Regulation	$43,469,626	$15,335,797	$761,572	$1,113,538	$10,273,196	$2,685,467	$5,426,949	$4,489,838	$698,868	$313,458	$2,531,759	$0
ARTCCs	$173,916,993	$71,681,328	$3,985,888	$4,983,166	$20,582,266	$6,825,158	$5,668,835	$28,826,982	$0	$1,824,315	$30,659,224	$0
Towers	$34,582,292	$3,886,247	$216,229	$338,244	$4,887,249	$2,974,114	$12,744,838	$4,468,739	$2,668,868	$761,873	$3,342,386	$0
TRACONs	$194,188,138	$75,146,348	$3,269,957	$5,779,861	$44,532,439	$5,965,378	$24,622,113	$7,345,779	$4,114,568	$1,195,281	$22,128,432	$0
FSSs	$53,388,591	$3,189,855	$141,115	$248,825	$4,689,893	$4,976,978	$21,834,917	$6,966,613	$3,575,969	$1,862,433	$6,695,593	$0
TOTAL OPS BUDGET	$593,371,339	$198,616,289	$9,848,748	$14,577,948	$97,688,837	$26,985,016	$81,988,245	$61,328,717	$12,552,935	$5,829,687	$78,015,687	$6,875,517
F&E	$10,688,487	$3,696,423	$183,509	$268,443	$1,657,672	$443,268	$1,459,679	$1,135,567	$183,194	$81,994	$1,498,659	$0
R&D	$7,229,519	$2,520,586	$125,135	$183,851	$1,138,364	$382,264	$996,468	$774,342	$124,919	$55,911	$1,016,478	$0
AIP GRANTS	$16,842,865	$5,182,491	$377,933	$27,945	$2,696,828	$286,188	$4,473,146	$3,474,686	$128,936	$83,846	$239,761	$0
TOTAL INDIRECT COSTS	$628,883,329	$210,015,789	$10,487,317	$15,057,386	$103,892,893	$27,936,728	$88,989,539	$66,713,231	$12,981,985	$5,250,439	$80,762,585	$6,875,517
GRAND TOTAL	$6,301,362,884	$2,531,417,664	$138,109,507	$149,952,937	$1,040,854,749	$195,549,517	$902,282,123	$598,910,026	$84,457,821	$38,228,883	$585,986,849	$36,412,808
USER GROUP PERCENTS	100.00%	40.17%	2.19%	2.38%	16.51%	3.10%	14.32%	9.50%	1.34%	0.61%	9.30%	0.58%

Table 4.29

1995 ALLOCATION

REGULATORY COSTS ALLOCATED TO PUBLIC

	TOTAL	AIR CARRIER JURISDICTIONAL	AIR CARRIER [illegible]	AIR CARRIER FREIGHT	COMMUTER	AIR TAXI	GENL AVIATION PISTON	GENL AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	[illegible]	$0	$0	$0	$0	$0	$0	$0	$0	$0	$7,616,561	$29,537,291
Aircraft Maintenance	[illegible]	[illegible]	[illegible]	[illegible]	$43,769,348	$11,704,893	$35,379,387	$29,983,635	$4,837,864	$2,164,974	$39,359,515	$0
Safety Regulation	$320,988,600	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$320,988,600
ATCOs	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	$33,722,871	$55,923,248	$142,432,729	$0	$5,861,183	$151,486,171	$0
Airports	[illegible]	[illegible]	[illegible]	[illegible]	$2,[illegible],654	$15,640,517	$69,986,484	$23,458,526	$13,966,545	$4,882,393	$17,576,794	$0
AVSECPs	[illegible]	[illegible]	[illegible]	[illegible]	$20,818,793	$28,936,969	$214,884,838	$35,633,841	$19,958,383	$5,758,893	$107,341,814	$0
FSSs	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	$17,890,588	$163,458,123	$25,842,656	$12,854,417	$3,619,892	$24,868,429	$0
TOTAL DPS BUDGET	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	$107,895,838	$539,543,992	$256,550,567	$51,639,409	$22,845,656	$347,448,484	$350,525,891
FAA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	$34,234,772	$66,664,114	$114,134,829	$7,575,335	$5,777,577	$125,820,191	$0
R&D	[illegible]	[illegible]	[illegible]	[illegible]	$47,530,357	$5,862,537	$14,892,386	$14,834,848	$1,828,288	$914,329	$14,166,841	$20,585,841
AIP GRANTS	[illegible]	[illegible]	[illegible]	[illegible]	$44,818,908	$6,850,866	$164,246,638	$124,415,826	$6,787,762	$3,885,458	$7,276,828	$0
TOTAL DIRECT COSTS	[illegible]	[illegible]	[illegible]	[illegible]	$683,624,600	$153,243,485	$785,347,843	$509,135,271	$67,830,798	$31,343,809	$494,711,545	$371,038,932
INDIRECT COSTS												
Public Interest	$5,[illegible]	$0	$0	$0	$0	$0	$0	$0	$0	$0	$315,958	$5,118,895
Aircraft Maintenance	[illegible]	[illegible]	[illegible]	[illegible]	$1,[illegible],959	$2,718,127	$8,766,698	$6,942,825	$1,[illegible],041	$501,328	$9,113,845	$0
Safety Regulation	$38,311,378	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$38,311,378
ATCOs	[illegible]	[illegible]	[illegible]	[illegible]	$6,750,288	$5,576,186	$4,729,174	$23,551,377	$0	$836,858	$25,048,372	$0
Airports	[illegible]	[illegible]	[illegible]	[illegible]	$3,[illegible],874	$2,326,631	$10,660,919	$3,489,639	$2,[illegible],967	$595,388	$2,614,688	$0
AVSECPs	[illegible]	[illegible]	[illegible]	[illegible]	$35,598,918	$4,760,681	$28,253,935	$5,872,164	$3,289,150	$955,499	$17,689,313	$0
FSSs	[illegible]	[illegible]	[illegible]	[illegible]	$3,587,824	$3,[illegible],897	$17,311,703	$5,330,451	$2,736,125	$812,912	$5,123,882	$0
TOTAL DPS BUDGET	[illegible]	[illegible]	[illegible]	[illegible]	$69,286,783	$13,189,663	$61,722,431	$45,186,456	$9,226,282	$3,701,965	$59,985,258	$43,430,273
FAA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible],234,88	$329,977	$1,887,598	$845,337	$135,373	$61,838	$1,189,674	$0
R&D	[illegible]	[illegible]	[illegible]	[illegible]	$84[illegible],697	$225,828	$742,274	$576,457	$93,996	$41,623	$756,715	$0
AIP GRANTS	[illegible]	[illegible]	[illegible]	[illegible]	$2,642,8[illegible]6	$198,672	$4,318,496	$1,354,484	$[illegible],558	$88,189	$229,971	$0
TOTAL INDIRECT COSTS	[illegible]	[illegible]	[illegible]	[illegible]	$73,884,297	$13,943,332	$67,870,798	$49,962,733	$9,572,249	$3,884,726	$62,881,617	$43,430,273
GRAND TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	$757,508,897	$171,186,737	$853,217,833	$559,098,004	$77,403,047	$35,227,726	$556,713,162	$414,461,205
USER GROUP PERCENTS	00.00%	10.[illegible]%	[illegible].09%	2.23%	15.19%	2.75%	13.54%	8.87%	1.23%	0.56%	8.83%	6.58%

Table 4.33

BASIS:

FAA MINIMUM GA ALLOCATION

COST CATEGORY	VARIABLE COST	JOINT COST	AIR TAXI	GA-PISTON	GA-TURBO	ROTORCRAFT	TOTAL COST
OPERATIONS OVERHEAD							
GRANT ADMINISTRATION	$0	$4,586,455	$638,584	$2,883,695	$1,697,401	$246,856	$4,586,455
AVIATION STANDARDS	$0	$42,412,146	$5,969,893	$17,918,576	$16,215,621	$2,388,057	$42,412,146
TOTAL OVERHEAD	$0	$46,998,601	$6,608,397	$19,922,271	$17,913,022	$2,554,912	$46,998,601
CAPITAL PROJECTS BENEFITTING GA:							
AIP GRANTS	$0	$6,333,518	$0	$713,577	$5,619,933	$0	$6,333,518
GA GRANTS	$0	$82,787,738	$1,863,125	$49,398,193	$31,534,421	$0	$82,787,738
F&E GA PROJECTS	$0	$26,623,737	$3,785,477	$11,894,141	$9,492,720	$1,531,399	$26,623,737
R&D GA PROJECTS	$0	$7,727,826	$1,865,628	$3,491,860	$2,729,935	$440,403	$7,727,826
TOTAL CAPITAL PROJECTS	$0	$123,472,811	$6,634,231	$65,489,771	$49,377,008	$1,971,801	$123,472,811
FLIGHT SERVICE STATIONS	$191,163,973	$38,831,456	$19,739,886	$163,342,407	$34,555,940	$12,357,196	$229,995,429
AIR ROUTE TRAFFIC CONTROL CENTERS	$190,141,384	$0	$26,794,233	$58,178,385	$113,168,766	$2	$190,141,384
TERMINAL NAVIGATION FACILITIES	$0	$19,942,566	$2,798,444	$8,622,811	$7,439,389	$1,081,923	$19,942,566
TERMINAL CONTRL FACILITIES:							
TOWERS	$31,693,151	$38,389,207	$7,784,127	$43,932,554	$11,555,073	$6,890,604	$70,082,358
TRACONS	$190,174,938	$5,845,004	$15,948,418	$149,432,375	$19,638,983	$11,000,255	$199,215,521
TOTAL MINIMUM GA ALLOCATION	$603,173,366	$273,479,646	$86,227,727	$500,928,492	$253,648,181	$35,856,692	$879,848,591
FULL GA SHARE OF BUDGET --DOLLARS			$195,549,517	$902,282,123	$538,910,826	$84,457,821	$1,781,199,487
--PERCENTS			3.10%	14.32%	9.58%	1.34%	28.27%
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET			1.37%	7.95%	4.03%	0.57%	13.96%
FULL GA SHARE OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC --DOLLARS			$173,186,737	$853,217,833	$559,898,004	$77,483,807	$1,662,985,581
--PERCENTS			2.75%	13.54%	8.87%	1.23%	26.38%
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC			1.27%	7.66%	3.77%	0.53%	13.29%

1996

Table 4.31
1996 ALLOCATION
REGULATORY COSTS ALLOCATED TO USERS

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMMUTER	AIR TAXI	GENL AVIATION PISTON	GENL AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	$38,877,790	$0	$0	$0	$0	$0	$0	$0	$0	$0	$7,969,969	$30,907,821
Navaid Maintenance	$289,572,434	$182,925,961	$5,101,318	$7,479,587	$46,722,289	$12,350,832	$36,758,254	$31,109,665	$5,014,691	$2,245,371	$39,864,474	$0
Safety Regulation	$285,880,874	$68,888,945	$3,411,432	$4,998,511	$52,850,346	$14,190,244	$26,488,992	$21,732,961	$3,424,536	$1,537,532	$7,724,575	$0
ARTCCs	$948,833,576	$374,957,587	$20,453,657	$25,676,685	$111,385,237	$37,875,482	$59,269,567	$150,445,999	$0	$5,345,841	$156,223,681	$0
Towers	$193,883,640	$16,881,761	$1,158,954	$1,757,836	$22,831,672	$16,332,432	$74,519,815	$24,496,277	$14,687,797	$4,179,453	$18,006,442	$0
TRACONs	$1,182,827,131	$393,876,481	$17,139,344	$30,294,984	$231,414,386	$38,135,788	$225,938,361	$37,109,269	$20,785,856	$6,838,388	$189,294,522	$0
FSSs	$292,978,826	$12,149,486	$537,165	$944,318	$17,958,876	$18,932,882	$173,481,469	$26,496,252	$13,595,385	$4,839,644	$24,932,317	$0
TOTAL OPS BUDGET	$3,862,452,672	$968,712,861	$47,793,862	$71,151,753	$482,353,926	$129,816,788	$596,295,658	$291,398,424	$57,428,265	$23,386,141	$364,815,981	$30,907,821
F&E	$1,695,995,839	$868,673,891	$43,527,573	$61,813,455	$363,319,388	$36,628,396	$69,429,298	$118,794,825	$7,863,865	$6,888,687	$127,945,358	$0
R&D	$251,773,617	$121,887,812	$6,832,588	$8,764,171	$53,829,284	$6,282,271	$18,272,232	$16,892,131	$2,268,938	$1,116,887	$17,388,359	$0
AIP GRANTS	$959,137,588	$495,357,238	$36,868,584	$694,182	$99,671,849	$6,416,957	$171,763,893	$129,868,888	$7,897,866	$3,962,188	$7,437,886	$0
TOTAL DIRECT COSTS	$5,969,358,916	$2,445,758,194	$134,222,439	$142,423,568	$999,174,359	$178,336,484	$855,761,874	$556,945,379	$74,658,126	$34,472,855	$516,786,785	$30,907,821
INDIRECT COSTS												
Public Interest	$7,203,490	$0	$0	$0	$0	$0	$0	$0	$0	$0	$418,779	$6,784,711
Navaid Maintenance	$85,588,868	$30,178,850	$1,495,752	$2,193,884	$13,699,418	$3,621,379	$11,453,388	$9,121,644	$1,478,354	$658,364	$11,668,635	$0
Safety Regulation	$42,973,550	$15,177,387	$752,462	$1,102,744	$10,256,274	$2,588,368	$5,338,398	$4,337,921	$686,993	$388,256	$2,424,764	$0
ARTCCs	$173,544,696	$71,488,261	$3,894,832	$4,889,397	$21,218,238	$7,859,998	$5,675,273	$28,648,269	$0	$1,817,967	$29,748,469	$0
Towers	$34,829,198	$2,868,996	$205,782	$314,268	$3,939,188	$2,928,118	$12,838,714	$4,379,753	$2,611,766	$747,255	$3,219,418	$0
TRACONs	$194,222,888	$76,363,218	$3,322,988	$5,873,456	$44,865,692	$5,842,688	$24,369,367	$7,194,599	$4,029,888	$1,178,682	$21,189,591	$0
FSSs	$53,241,654	$3,188,219	$148,688	$247,182	$4,698,598	$4,955,626	$21,941,387	$6,935,639	$3,558,717	$1,057,414	$6,526,264	$0
TOTAL OPS BUDGET	$598,795,441	$199,168,931	$9,812,344	$14,628,152	$98,669,384	$26,988,888	$81,688,519	$60,617,824	$12,357,718	$4,959,938	$75,215,919	$6,784,711
F&E	$18,468,487	$3,677,212	$182,253	$267,221	$1,669,236	$441,255	$1,428,174	$1,111,448	$179,159	$88,228	$1,424,229	$0
R&D	$7,134,838	$2,387,519	$124,288	$182,228	$1,138,265	$388,895	$974,889	$757,985	$122,178	$54,783	$971,193	$0
AIP GRANTS	$16,666,877	$5,118,226	$373,171	$27,736	$2,675,861	$286,184	$4,413,424	$3,421,565	$119,172	$81,373	$238,246	$0
TOTAL INDIRECT COSTS	$625,856,763	$218,463,887	$10,492,848	$15,897,338	$104,152,667	$27,936,343	$88,425,885	$65,988,742	$12,778,211	$5,176,233	$77,841,587	$6,784,711
GRAND TOTAL	$6,594,415,679	$2,656,214,081	$144,714,486	$157,520,898	$1,103,327,026	$286,272,747	$944,186,879	$622,854,121	$87,436,338	$39,649,889	$594,548,291	$37,692,533
USER GROUP PERCENTS	100.00%	40.28%	2.19%	2.39%	16.73%	3.13%	14.32%	9.45%	1.33%	0.60%	9.02%	0.57%

Table 4.32

1996 ALLOCATION

REGULATORY COSTS ALLOCATED TO PUBLIC

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INTL	AIR CARRIER FREIGHT	COMMUTER	AIR TAXI	GENL AVIATION PISTON	GENL AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	$38,877,790	$0	$0	$0	$0	$0	$0	$0	$0	$0	$7,969,969	$30,907,821
Navaid Maintenance	$289,572,434	$182,925,961	$5,10[illegible],310	$7,479,587	$46,722,289	$12,350,832	$36,758,254	$31,109,665	$5,814,691	$2,245,371	$39,864,474	$0
Safety Regulation	$329,464,660	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$329,464,660
ARTCCs	$940,833,576	$374,957,587	$28,453,657	$25,676,685	$111,385,237	$37,875,482	$59,267,567	$150,445,999	$0	$5,345,841	$156,223,681	$0
Towers	$193,083,648	$16,881,761	$1,150,954	$1,757,836	$22,831,672	$16,332,432	$74,519,815	$24,496,277	$14,687,797	$4,179,453	$18,286,442	$0
TRACONs	$1,182,827,131	$393,876,481	$17,139,344	$38,294,904	$231,414,386	$38,135,788	$225,938,361	$37,189,269	$28,785,856	$6,838,388	$189,294,522	$0
FSSs	$298,978,826	$12,149,486	$537,165	$944,318	$17,958,076	$18,932,882	$173,481,469	$26,496,252	$13,595,385	$4,839,644	$24,932,317	$0
TOTAL OPS BUDGET	$3,186,837,258	$899,911,116	$44,382,438	$66,153,241	$429,583,588	$114,826,536	$569,886,666	$269,657,463	$54,883,729	$21,848,689	$356,291,486	$360,372,481
F&E	$1,695,995,839	$868,673,891	$43,527,573	$61,813,455	$363,319,388	$36,620,396	$69,429,298	$118,794,825	$7,863,865	$6,888,687	$127,945,358	$0
R&D	$251,772,617	$113,489,697	$5,655,915	$8,212,819	$50,388,118	$5,378,518	$15,478,796	$14,595,579	$1,898,748	$958,251	$14,365,517	$21,456,475
AIP GRANTS	$959,137,588	$495,357,238	$36,868,584	$694,182	$99,671,849	$6,416,957	$171,763,893	$129,868,888	$7,897,866	$3,962,188	$7,437,886	$0
TOTAL DIRECT COSTS	$6,093,743,582	$2,369,351,134	$138,434,421	$136,872,897	$942,874,919	$163,234,488	$826,558,646	$532,915,866	$78,863,399	$32,769,567	$586,839,288	$381,828,956
INDIRECT COSTS												
Public Interest	$5,363,291	$0	$0	$0	$0	$0	$0	$0	$0	$0	$311,798	$5,051,493
Navaid Maintenance	$63,886,373	$22,488,384	$1,114,189	$1,633,634	$10,204,726	$2,697,575	$8,588,626	$6,794,736	$1,895,271	$498,417	$8,786,895	$0
Safety Regulation	$37,911,905	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$37,911,905
ARTCCs	$141,852,481	$56,323,409	$3,181,499	$3,993,912	$17,325,688	$5,766,969	$9,728,815	$23,481,381	$0	$831,528	$24,388,881	$0
Towers	$27,297,252	$2,248,386	$161,144	$246,112	$3,184,626	$2,286,682	$10,697,174	$3,429,692	$2,045,219	$585,168	$2,521,858	$0
TRACONs	$155,799,384	$61,848,885	$2,[illegible],513	$4,695,559	$35,868,860	$4,670,696	$20,818,886	$5,751,751	$3,221,784	$935,986	$16,948,184	$0
FSSs	$41,335,129	$2,434,838	$187,652	$189,247	$3,597,326	$3,794,111	$17,371,114	$5,318,842	$2,724,614	$889,574	$4,996,618	$0
TOTAL OPS BUDGET	$473,365,735	$146,527,813	$7,228,996	$10,758,463	$70,888,346	$19,216,234	$61,394,934	$44,687,682	$9,886,887	$3,652,585	$57,776,554	$42,963,398
F&E	$7,786,198	$2,737,523	$135,688	$198,935	$1,242,673	$328,495	$1,864,895	$827,424	$133,376	$59,728	$1,860,276	$0
R&D	$5,311,581	$1,866,885	$92,524	$135,668	$847,419	$224,812	$726,199	$564,247	$98,953	$48,725	$723,836	$0
AIP GRANTS	$16,189,111	$4,943,662	$360,528	$26,567	$2,587,878	$198,969	$4,268,265	$3,389,831	$115,878	$78,627	$221,323	$0
TOTAL INDIRECT COSTS	$502,574,625	$156,075,883	$7,809,728	$11,119,625	$74,757,516	$19,967,718	$67,453,494	$49,388,385	$9,426,296	$3,831,657	$59,781,189	$42,963,398
GRAND TOTAL	$6,596,318,127	$2,525,426,938	$138,244,141	$147,992,522	$1,017,632,436	$183,202,118	$894,012,139	$582,304,171	$88,289,685	$36,601,224	$565,820,477	$424,792,354
USER GROUP PERCENTS	100.00%	38.29%	2.10%	2.24%	15.43%	2.78%	13.55%	8.83%	1.22%	0.55%	8.58%	6.44%

Table 4.33

M:NSYS

1996 MINIMUM GA ALLOCATION

COST CATEGORY	VARIABLE COST	JOINT COST	AIR TAXI	GA-PISTON	GA-TURBO	ROTORCRAFT	TOTAL COST
OPERATIONS OVERHEAD							
GAMAT ADMINISTRATION	$0	$4,564,899	$645,423	$1,991,898	$1,682,249	$245,338	$4,564,899
AVIATION STANDARDS	$0	$44,383,426	$6,344,120	$18,731,815	$16,896,766	$2,411,524	$44,383,426
TOTAL OVERHEAD	$0	$48,947,525	$6,989,543	$20,722,186	$18,579,015	$2,656,862	$48,947,525
CAPITAL PROJECTS BENEFITTING GA:							
CS GRANTS	$0	$6,627,385	$0	$746,687	$5,880,698	$0	$6,627,385
GA GRANTS	$0	$86,629,089	$1,949,574	$51,681,898	$32,997,618	$0	$86,629,089
FAE GA PROJECTS	$0	$27,860,943	$3,934,904	$12,417,827	$9,911,360	$1,597,652	$27,860,943
R&D GA PROJECTS	$0	$8,086,897	$1,131,806	$3,644,728	$2,850,828	$459,536	$8,086,897
TOTAL CAPITAL PROJECTS	$0	$129,204,315	$7,016,284	$68,490,339	$51,640,504	$2,057,188	$129,204,315
FLIGHT SERVICE STATIONS	$283,286,586	$40,210,872	$20,930,864	$173,215,947	$36,274,894	$13,075,674	$243,497,378
AIR ROUTE TRAFFIC CONTROL CENTERS	$283,226,186	$0	$29,637,560	$53,324,366	$120,264,179	$0	$203,226,186
TERMINAL NAVIGATION FACILITIES	$0	$22,872,298	$3,147,834	$9,523,295	$8,204,688	$1,196,553	$22,872,298
TERMINAL CONTRL FACILITIES:							
TOWERS	$33,919,882	$39,763,611	$7,994,354	$46,547,584	$11,998,371	$7,152,184	$73,682,493
TRACONS	$203,425,276	$6,852,194	$17,833,153	$159,721,212	$20,974,659	$11,748,446	$212,890,358
TOTAL MINIMUM GA ALLOCATION	$643,856,978	$286,250,687	$92,749,592	$531,544,848	$267,928,229	$37,884,907	$933,520,525
FULL GA SHARE OF BUDGET --DOLLARS			$286,272,747	$944,186,879	$622,854,121	$87,436,336	$1,860,749,283
—PERCENTS			3.13%	14.32%	9.45%	1.33%	28.22%
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET			1.41%	8.06%	4.06%	0.57%	14.16%
FULL GA SHARE OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC —DOLLARS			$183,282,118	$894,812,139	$582,384,171	$88,289,685	$1,739,888,834
—PERCENTS			2.78%	13.55%	8.83%	1.22%	26.38%
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC			1.31%	7.77%	3.81%	0.54%	13.48%

1997

Table 4.34

1997 ALLOCATION

REGULATORY COSTS ALLOCATED TO USERS

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INTL	AIR CARRIER FREIGHT	COMMUTER	AIR TAXI	GENL AVIATION PISTON	GENL AVIATION TURBINE	MOTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	$40,681,720	$0	$0	$0	$0	$0	$0	$0	$0	$0	$8,339,776	$32,341,944
Navaid Maintenance	$383,006,595	$186,524,293	$5,369,862	$7,831,688	$49,868,331	$13,833,957	$38,176,663	$32,265,996	$5,196,971	$2,327,982	$40,361,812	$0
Safety Regulation	$214,595,789	$71,963,847	$3,562,333	$5,231,673	$55,739,886	$14,915,288	$27,523,635	$22,651,533	$3,566,212	$1,681,771	$7,841,210	$0
ARTCCs	$998,883,829	$397,433,872	$21,679,682	$27,215,782	$122,482,592	$48,764,477	$62,817,663	$158,922,898	$0	$5,647,825	$161,121,518	$0
Towers	$282,383,884	$16,196,568	$1,164,961	$1,779,238	$23,833,454	$17,855,113	$79,428,389	$25,568,194	$15,254,166	$4,364,386	$18,446,763	$0
TRACONs	$1,171,857,683	$425,721,664	$18,525,872	$32,744,268	$247,988,433	$31,393,563	$237,574,349	$38,658,896	$21,653,394	$6,298,328	$111,316,525	$0
FSSs	$318,883,595	$12,874,238	$568,868	$1,888,274	$19,117,428	$28,836,887	$183,965,778	$28,837,877	$14,388,529	$4,273,368	$25,829,844	$0
TOTAL OPS BUDGET	$3,248,614,296	$1,832,712,914	$58,878,739	$75,862,755	$518,213,317	$137,198,484	$629,486,397	$386,114,995	$68,851,271	$24,584,772	$373,256,647	$32,341,944
F&E	$1,774,689,289	$899,441,731	$45,429,678	$64,631,848	$385,645,997	$39,174,818	$72,286,732	$123,685,828	$8,159,296	$6,246,888	$130,867,235	$0
R&D	$263,455,913	$126,644,343	$6,383,654	$9,178,143	$57,875,296	$6,659,175	$18,983,343	$17,556,226	$2,355,829	$1,159,188	$17,541,523	$0
AIP GRANTS	$1,883,641,572	$518,421,796	$38,582,231	$732,679	$184,771,747	$6,887,882	$179,621,271	$135,556,837	$7,422,886	$4,125,845	$7,688,877	$0
TOTAL DIRECT COSTS	$6,282,488,998	$2,577,220,784	$141,186,354	$158,485,417	$1,865,786,357	$189,848,358	$900,377,743	$582,833,878	$77,987,682	$36,835,877	$528,465,482	$32,341,944
INDIRECT COSTS												
Public Interest	$7,868,888	$0	$0	$0	$0	$0	$0	$0	$0	$0	$410,983	$6,657,185
Navaid Maintenance	$63,993,983	$29,846,374	$1,476,828	$2,178,352	$13,712,599	$3,584,682	$11,159,778	$8,873,881	$1,429,272	$648,228	$11,188,894	$0
Safety Regulation	$42,245,178	$14,935,939	$739,258	$1,085,914	$10,188,952	$2,557,888	$5,228,813	$4,243,284	$671,489	$381,383	$2,388,482	$0
ARTCCs	$172,253,655	$78,796,683	$3,861,983	$4,848,868	$21,818,394	$7,261,566	$5,658,339	$28,389,533	$0	$1,885,931	$28,781,326	$0
Towers	$33,378,818	$2,786,985	$194,699	$297,361	$3,849,557	$2,858,483	$12,842,878	$4,275,191	$2,549,413	$729,415	$3,882,988	$0
TRACONs	$193,349,571	$77,173,866	$3,358,149	$5,935,746	$44,952,869	$5,698,895	$23,986,545	$7,887,788	$3,925,238	$1,148,283	$28,179,888	$0
FSSs	$52,886,683	$3,152,317	$139,294	$244,928	$4,688,956	$4,985,894	$21,926,369	$6,864,968	$3,521,114	$1,846,346	$6,324,512	$0
TOTAL OPS BUDGET	$565,895,799	$198,611,284	$9,778,132	$14,582,252	$99,195,327	$26,851,168	$88,786,713	$59,574,469	$12,896,446	$4,863,579	$72,187,385	$6,657,185
F&E	$18,263,668	$3,636,748	$179,949	$264,455	$1,678,865	$436,788	$1,388,989	$1,881,263	$174,155	$78,818	$1,352,534	$0
R&D	$6,999,861	$2,479,959	$122,718	$188,336	$1,139,391	$297,847	$948,815	$737,331	$118,759	$53,196	$922,316	$0
AIP GRANTS	$16,361,165	$5,825,582	$366,349	$27,328	$2,648,857	$284,874	$4,338,135	$3,358,484	$116,745	$79,272	$219,628	$0
TOTAL INDIRECT COSTS	$618,728,494	$209,753,413	$10,439,141	$15,854,471	$104,646,441	$27,798,669	$87,453,771	$64,743,546	$12,586,185	$5,074,057	$74,681,775	$6,657,185
GRAND TOTAL	$6,901,121,483	$2,786,974,197	$151,625,495	$165,459,888	$1,178,352,797	$217,631,819	$987,831,515	$647,576,625	$98,493,787	$41,109,934	$603,067,258	$38,999,849
USER GROUP PERCENTS	100.00%	40.38%	2.20%	2.40%	16.96%	3.15%	14.31%	9.38%	1.31%	0.60%	8.74%	0.57%

Table 4.35

1997 ALLOCATION

REGULATORY COSTS ALLOCATED TO PUBLIC

	TOTAL	AIR CARRIER DOMESTIC	AIR CARRIER INT'L	AIR CARRIER FREIGHT	COMMUTER	AIR TAXI	GENL AVIATION PISTON	GENL AVIATION TURBINE	ROTOR	GOVERNMENT	MILITARY	PUBLIC INTEREST
DIRECT COSTS												
Public Interest	$40,641,720	$0	$0	$0	$0	$0	$0	$0	$0	$0	$8,339,776	$32,341,944
Navaid Maintenance	$383,006,595	$188,524,293	$5,369,862	$7,891,688	$49,860,331	$13,833,957	$38,176,663	$32,265,996	$5,196,971	$2,327,982	$40,361,812	$0
Safety Regulation	$337,783,816	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$337,783,816
ARTCCs	$996,063,829	$397,433,872	$21,679,682	$27,215,782	$122,482,592	$40,764,477	$62,817,663	$158,922,898	$0	$5,647,825	$161,121,518	$0
Towers	$282,383,884	$16,196,588	$1,164,961	$1,779,238	$23,833,454	$17,055,113	$79,428,389	$25,588,194	$15,254,166	$4,364,386	$18,446,763	$0
TRACONs	$1,171,857,683	$425,721,664	$18,525,872	$32,744,268	$247,980,433	$31,393,563	$237,574,349	$38,658,896	$21,653,394	$6,298,328	$111,316,525	$0
FSSs	$318,083,595	$12,874,338	$568,868	$1,000,274	$19,117,428	$28,836,867	$183,965,778	$28,837,877	$14,388,529	$4,273,368	$25,829,844	$0
TOTAL OPS BUDGET	$3,363,722,322	$960,749,867	$47,388,465	$70,631,882	$462,474,231	$122,283,196	$601,962,762	$283,463,461	$56,485,859	$22,903,881	$365,415,437	$370,845,760
F&E	$1,774,689,299	$899,441,731	$45,429,670	$64,631,848	$385,645,997	$39,174,810	$72,286,732	$123,685,828	$8,159,296	$6,246,888	$130,867,235	$0
R&D	$263,455,913	$118,632,872	$5,987,201	$8,595,511	$53,394,143	$5,696,887	$16,883,641	$15,174,851	$1,971,348	$987,313	$14,561,698	$22,452,855
AIP GRANTS	$1,883,641,572	$518,421,796	$38,582,231	$732,679	$184,771,747	$6,887,882	$179,621,271	$135,556,837	$7,422,886	$4,125,845	$7,688,877	$0
TOTAL DIRECT COSTS	$6,485,309,016	$2,497,245,465	$137,227,568	$144,591,112	$1,086,286,117	$173,962,775	$869,954,407	$557,799,378	$74,037,781	$34,262,238	$517,644,447	$392,497,815
INDIRECT COSTS												
Public Interest	$5,262,617	$0	$0	$0	$0	$0	$0	$0	$0	$0	$305,945	$4,956,672
Navaid Maintenance	$62,613,274	$22,238,893	$1,100,881	$1,616,574	$10,213,747	$2,669,969	$8,363,206	$6,689,598	$1,864,585	$476,864	$8,267,838	$0
Safety Regulation	$37,388,186	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$37,388,186
ARTCCs	$140,766,443	$57,819,986	$3,154,838	$3,959,438	$17,819,296	$5,938,562	$4,700,573	$23,120,556	$0	$821,549	$23,448,535	$0
Towers	$26,769,762	$2,122,881	$152,629	$233,107	$3,817,758	$2,234,492	$10,671,287	$3,351,413	$1,998,539	$571,884	$2,416,828	$0
TRACONs	$155,866,185	$61,788,153	$2,684,852	$4,745,651	$35,939,987	$4,549,892	$19,659,731	$5,602,746	$3,138,242	$911,661	$16,133,186	$0
FSSs	$46,991,584	$2,415,834	$106,715	$187,637	$3,586,146	$3,758,474	$17,333,743	$5,259,342	$2,697,575	$881,621	$4,845,297	$0
TOTAL OPS BUDGET	$468,777,972	$146,288,870	$7,198,235	$10,742,486	$70,576,836	$19,143,389	$60,728,459	$43,943,655	$8,898,941	$3,583,499	$55,409,623	$42,264,858
F&E	$7,642,886	$2,787,530	$133,971	$196,885	$1,243,946	$325,179	$1,834,817	$884,992	$129,657	$58,878	$1,886,951	$0
R&D	$5,211,877	$1,846,378	$91,368	$134,263	$848,295	$221,752	$786,179	$548,955	$88,418	$39,686	$686,679	$0
AIP GRANTS	$15,843,145	$4,863,364	$354,680	$26,241	$2,557,924	$198,169	$4,195,366	$3,246,284	$112,946	$76,741	$211,598	$0
TOTAL INDIRECT COSTS	$497,475,880	$155,785,334	$7,778,165	$11,099,795	$75,227,882	$19,888,498	$66,664,820	$48,543,887	$9,229,962	$3,757,924	$57,314,843	$42,264,858
GRAND TOTAL	$6,982,984,816	$2,652,958,799	$145,005,733	$155,690,907	$1,161,513,119	$193,851,265	$936,619,227	$606,343,176	$83,267,663	$38,020,162	$574,959,290	$434,762,673
USER GROUP PERCENTS	100.00%	38.43%	2.18%	2.26%	15.67%	2.81%	13.57%	8.78%	1.21%	0.55%	8.33%	6.30%

Table 4.36

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1997 MINIMUM GA ALLOCATION

COST CATEGORY	VARIABLE COST	JOINT COST	AIR TAXI	GA-PISTON	GA-TURBO	ROTORCRAFT	TOTAL COST
OPERATIONS OVERHEAD							
GRANT ADMINISTATION	$0	$4,517,571	$649,072	$1,967,900	$1,658,079	$242,520	$4,517,571
AVIATION STANDARDS	$0	$46,446,409	$6,743,343	$19,579,318	$17,684,158	$2,519,590	$46,446,409
TOTAL OVERHEAD	$0	$50,963,980	$7,392,415	$21,547,218	$19,262,237	$2,762,110	$50,963,980
CAPITAL PROJECTS BENEFITTING GA:							
CS GRANTS	$0	$6,934,895	$0	$781,333	$6,153,562	$0	$6,934,895
GA GRANTS	$0	$90,648,679	$2,848,834	$54,879,938	$34,528,787	$0	$90,648,679
F&E GA PROJECTS	$0	$29,155,785	$4,179,896	$12,961,787	$10,347,471	$1,666,631	$29,155,785
R&D GA PROJECTS	$0	$8,462,671	$1,282,481	$3,883,947	$2,976,783	$479,460	$8,462,671
TOTAL CAPITAL PROJECTS	$0	$135,201,951	$7,422,411	$71,626,925	$54,886,524	$2,146,091	$135,201,951
FLIGHT SERVICE STATIONS	$216,177,786	$41,639,350	$22,195,754	$183,697,492	$38,886,444	$13,837,446	$257,817,136
AIR ROUTE TRAFFIC CONTROL CENTERS	$217,254,749	$0	$32,782,614	$56,667,677	$127,804,458	$0	$217,254,749
TERMINAL NAVIGATION FACILITIES	$0	$24,429,496	$3,541,678	$10,517,181	$9,047,332	$1,323,314	$24,429,496
TERMINAL CONTRL FACILITIES:							
TOWERS	$36,301,979	$41,186,417	$8,299,475	$49,317,827	$12,448,808	$7,423,886	$77,488,396
TRACONS	$217,672,538	$6,266,726	$18,198,434	$170,779,854	$22,489,588	$12,552,187	$227,585,679
TOTAL MINIMUM GA ALLOCATION	$687,407,851	$299,687,921	$99,832,774	$564,153,374	$283,864,591	$40,844,234	$990,741,388
FULL GA SHARE OF BUDGET —DOLLARS			$217,631,819	$987,831,515	$647,576,625	$90,493,707	$1,943,532,866
—PERCENTS			3.15%	14.31%	9.38%	1.31%	28.16%
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET			1.45%	8.17%	4.18%	0.56%	14.36%
FULL GA SHARE OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC —DOLLARS			$193,851,265	$936,619,227	$606,343,176	$83,267,663	$1,820,081,331
—PERCENTS			2.81%	13.57%	8.78%	1.21%	26.37%
MINIMUM GA ALLOCATION AS PERCENT OF BUDGET IF REGULATORY COSTS ARE ALLOCATED TO THE PUBLIC			1.35%	7.89%	3.85%	0.54%	13.68%

NOTES

[1]"Wharton Long Term Forecast" (September, 1985).

[2]The NASP is scheduled to run through the year 2000, but detailed project and budget information was only available through 1992.

[3]The military allocation includes certain "reimburseables"--monies paid to FAA by DOD for certain specialized services. In 1986, this amounted to $23 million, or about four percent of the military allocation. It is expected that these reimburseables will grow with labor costs, so that by 1997, they will be approximately $35.6 million, or six percent of the military allocation. Net military allocations, after receipt of the reimburseables, can be derived by subtracting these monies from the military allocation:

Year	Reimburseables ($ Millions)
1986	23.0
1987	23.7
1988	24.4
1989	25.1
1990	25.9
1991	27.1
1992	28.3
1993	29.7
1994	31.0
1995	32.5
1996	33.9
1997	35.6

[4]See Wharton Econometric Forecasting Associates Long-Term Forecasts (1986).

[5]If all efficiencies were assumed to be realized beginning in 1992, ATC operating costs would be higher in the period 1986-1991, GA and military shares would increase because ATC costs make up a relatively large share of their allocated costs.

[6]It should be noted that there are two exceptions to the reduced unit cost evidenced in 1992. The marginal costs of general aviation operations at TRACONs, and air carrier operations at towers are higher than in 1984. In both cases, the standard error of the coefficients is large relative to those for other user groups; at the same time, however, the coefficient is significantly different from zero according to the t-tests.

[7]This assumption was made to interpolate between 1985 and 1992; the actual schedule of installation will be different.

[8]This pattern has recently been documented in a study by FAA-APO.

[9]There is a possibility that with increases in IFR flying, especially by turbine rotorcraft operators that the average rotorcraft flight would consume more FAA resources. At present, there are no reliable data on this recently emerging trend.

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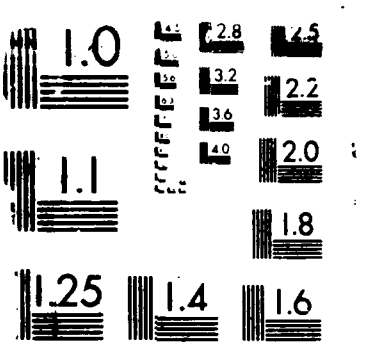

AMORTIZATION OF F&E

The F&E cost category in the FAA budget includes virtually all of the capital expenditures made for the ATC system by the FAA each year. By definition, capital assets are those which are not fully consumed by users in a single year. It is desirable to identify how much capital is consumed in a year by each user group in order to identify varying consumption patterns exhibited by users over time, and the impact of FAA F&E expenditure patterns on user group consumption.

In the present study, current and future users will be allocated the costs of capital projects as they use them. This is a departure from traditional financial reporting, but is consistent with the problem faced by the FAA of paying for current and future F&E. The reasons for this amortization method are discussed below.

Before beginning the discussion, it is appropriate to define some terms:

- o Depreciation: Allocation of costs incurred for capital assets over the useful life of the asset.
- o Amortization: The schedule of payments necessary to retire the costs of a capital asset.
- o Planning Gap: The difference between the total cost of a capital project and the sum of depreciation.

- o Cost of Capital: The opportunity cost attributable to the investment in a capital project.
- o Replacement Cost: The future cost of a current project after adjusting for inflation and technological change.

Overview of the Problem

Past FAA Cost Allocation Studies have not amortized F&E. Instead, F&E expenditures identified in the budget have been expensed in a single year. This treatment ignores the fact that capital is consumed over time and not in a single year; and under certain conditions, can result in a misidentification of the actual attributable costs to users over time. For example, suppose the FAA spends money on capital equipment in one year, and then spends nothing on capital in the next three years. If users pay for it in the same year, then all future users obtain the benefits of it free of charge. Obviously, such a treatment is inequitable, and it also does not reflect the actual consumption of the capital services produced. On the other hand, if capital expenditures are about the same every year, and are undertaken to benefit about the same mix of users, then expensing F&E would be just as accurate a measure of capital consumption as amortization.

Ideally, one would measure the consumption of capital services by estimating it in the context of a long-run marginal cost function. Such a function would include not only the variable costs of operating a particular facility, but also the maintenance, depreciation (including replacement costs) and interest consumed in the production process. Unfortunately, in the case of the FAA, it was not feasible to estimate long run

marginal cost functions which include depreciation and the cost of capital. Therefore, the F&E allocation was developed separately.

Even in the absence of complete long-run marginal cost estimates, it is important to focus on the two key components of capital consumption: depreciation and the cost of capital. The former represents the value of capital consumed in a particular time period. Depreciation should be valued to reflect the replacement cost of the asset. If an existing asset put into place in year one must be replaced in year three, the cost of that replacement would be affected by both technological change and by the rate of inflation. If replacement costs are not considered, insufficient funds may be collected to replace the capital as it wears out.

The cost of capital represents the opportunity cost of employing the capital in FAA facilities instead of employing it elsewhere. The time value of money embedded in a capital project is a real cost since there are alternative uses of those funds. Therefore, capital consumption should include not only depreciation, but also the cost of capital.

Including replacement costs and the cost of capital in an amortization schedule is not the same as reporting depreciation in a financial report. The purpose of traditional financial reporting is to identify net income, defined as income received minus costs incurred. Replacement costs and the cost of capital are not considered in measuring net income. The purpose of the amortization schedule suggested above is to insure that capital

can be replaced as it wears out. The suggested amortization schedule is a tool to help plan and control a capital budget; a depreciation schedule reported in a financial statement is part of a report on current income.

One of the difficulties of including replacement costs in amortization schedules is that it is difficult to predict both inflation and the impacts of technological change. In one set of circumstances, however, the problem can be made more tractable. If it is known that a certain piece of equipment being put in place this year is to replace another piece of equipment put into place two years ago, then the price of the equipment this year exactly identifies the impacts of inflation and technological change over the two year period. The cost of the current capital expenditure exactly identifies the replacement cost of the past capital project. Under these circumstances, it makes no difference whether the amortization schedule is based upon historic cost including replacement, or current cost--they are the same. (This proposition is demonstrated below.)

It is also interesting to note that basing amortization schedules on current capital expenditures is equivalent to identifying tax revenues in a capital budgeting problem. In the present case, tax revenues are equivalent to the future consumption of current capital expenditures. Looking at amortization in this way is also consistent with the problem faced by the FAA today: to design a set of taxes to pay for current and future F&E projects.

Finally, since taxes will be based in part upon the amortization schedule to be developed in this study, it is

desirable that the pattern of payments made for recovery be relatively even. It would be difficult to administer taxes which vary year to year. Furthermore, providing for relatively even payments to recover expenses over time reduces the possible intertemporal inequities that would occur if some users consume services during high tax years, while others consume services only in low tax years.

Amortization Examples

The following two-period examples for a single investment illustrates all of the preceding propositions. Suppose an investment was made two years ago and must be replaced today. What amortization schedule will exactly offset the current costs of the project and provide for an even payment pattern over time? To answer this question, assume the following:

- The cost of the project two years ago was $10.
- The inflation rate over the past two years and the expected inflation rate in the following two years is ten percent.
- The cost of capital (the appropriate discount rate) is ten percent.
- The expected asset life of a project put into place this year is also two years.

There are five relevant cases which can be examined under these assumptions. They illustrate all of the propositions previously described. Those cases are:

- o Historic depreciation, which corresponds to traditional financial reporting.
- o Historic depreciation with replacement costs, which corresponds to adjustments made in the footnotes to traditional financial statements.
- o Historic depreciation with replacement and consideration of the cost of capital.
- o Amortization of current projects including replacement and capital costs.
- o Amortization of current projects with replacement and capital costs assuming an even payment stream over time.

All of these examples are shown in Table A.1, and are discussed in turn. The equations used to develop the examples in Table A.1 are shown in Tables A.2 and A.3.

Historic Depreciation

The first case shown in Table A.1 corresponds to traditional financial reporting which is designed to report annual net income. Assume an investment was made two years ago (at the beginning of year 1) and cost $10. Today, at the beginning of year 3, the replacement cost of that project (assuming a ten percent inflation rate) is $12.10. Assuming taxes are based on the depreciation schedule, only five dollars of user taxes are collected in each year (years 1 and 2). Historic depreciation does not reflect either the increasing cost to replace the project or the opportunity cost of the capital invested. As a result, there are insufficient funds to replace the capital at the beginning of year 3. The so-called planning gap is $2.10.

Table A.1

USER TAXES TO FUND THE PROJECT

	Year 1 User Tax	Year 2 User Tax	Year 3 User Tax	Year 4 User Tax
Historic Depreciation	$\frac{P}{2}$	$\frac{P}{2}$	-	-
Historic with Replacement Cost	$\frac{P(1+i)}{2}$	$\frac{P(1+i)^2}{2}$	-	-
Historic with Replacement Cost and Capital Cost	$\frac{P(1+i)}{2}$	$\frac{P(1+i)^2}{2}$	-	-
Current with Replacement Cost and Capital Cost	-	-	$\frac{P(1+i)^2(1+r)}{2}$	$\frac{P(1+i)^2(1+r)}{2}$
Current Mortgage	-	-	$P(1+i)^2\left[\frac{r(r+1)^2}{(r+1)^2-1}\right]$	$P(1+i)^2\left[\frac{r(r+1)^2}{(1+r)^2-1}\right]$

P = Price in Year 1
Asset Life = t = 2
Cost of Capital = r
Replacement Cost Rate = i

Table A.2

ALTERNATIVE F&E AMORTIZATION METHODS: AN EXAMPLE

	Year 1 Investment	Beginning of Year 3 Current Cost	-	Funded Thru User Taxes	=	Planning GAP	User "Taxes" End of Year 1	User "Taxes" End of Year 2	User "Taxes" End of Year 3	User "Taxes" End of Year 4	Payment Pattern
Historic Depreciation	10	12.10	-	(5 + 5)	=	2.10 short-fall	5	5	-	-	Even
Historic with Replacement Cost	10	12.10	-	(5.5 + 6.05)	=	0.55 short-fall	5.5	6.05	-	-	Uneven
Historic with Replacement Cost & Capital Cost	10	12.10	-	(6.05 + 6.05)		∅ if r = i	5.5	6.05	-	-	Uneven
Current with Replacement Cost & Capital Cost	12.10	12.10	-	(6.05 + 6.05)		∅ if r = i	-	-	6.65	7.32	Uneven
Current Mortgage	12.10	12.10	-	(6.34 + 5.76)		∅	-	-	6.97	6.97	Even

Assumptions: Asset Life = t = 2 years
Cost of Capital = r = 0.1
Replacement Cost Rate = i = 0.1

This shortfall occurs because users in the past two years have been consuming a capital asset whose true costs are higher than the amount depreciated in each year.

If the investor (the FAA) is interested in funding current capital projects, then traditional financial reporting using historic depreciation (straight-line or otherwise) will lead to shortfalls in tax collections. It should be noted, however, that one of the desirable features of the historic straight-line depreciation method is that the annual taxes collected to amortize the investment are the same. This even payment pattern is desirable so that taxes do not have to be adjusted in each year.

Historic Depreciation with Replacement Costs

In the second example in Table A.1, depreciation payments include consideration of replacement costs. As is shown in Table A.2, this means that the first year's depreciation payment includes a replacement component $(1+i)$, as does the second year's $(1+i)^2$. The result is that the shortfall is smaller than in the first case, but still exists because there is no consideration of the cost of capital. Also, because replacement cost is considered, the user taxes are different in each year.

In sum, the planning gap is smaller because replacement costs have been considered, but the payment pattern required to fund the depreciation schedule is not even.

Historic Depreciation with Replacement and Consideration of Capital Costs

The third example in Table A.1 includes consideration of both replacement costs and the cost of capital in developing the

depreciation schedule. In Table A.2, notice that the actual taxes paid by users in the first year are the same as in the previous case. But, in calculating the planning gap in Table A.3, the first year's depreciation payment includes both a replacement cost factor (1+i) and an opportunity cost of capital factor (1+r). The latter represents the interest payment earned on the first year's taxes collected. In other words, users are being compensated for paying money into the system before it is required to replace the capital. This is equivalent to the opportunity cost of capital.

In calculating the planning gap in Table A.3, the second year's payment includes only the replacement cost term $(1+i)^2$. This is the case because, in this example, it is assumed that the money comes in at the end of the second year and is immediately spent at the beginning of year 3. Again, the second year's payment is the same as in the previous case.

Including the cost of capital in the analysis reduces the planning gap to zero, as long as the cost of capital and the replacement cost rate are equivalent. The annual payment pattern of taxes remains uneven, however.

Amortization of Current Projects Considering Replacement and Capital Costs

So long as the current project replaces the investment made two years ago, amortizing the current project into the future can be made equivalent to historic depreciation with consideration of replacement and capital costs. This is illustrated in the fourth case in Table A.1. The planning gap is calculated by comparing the current cost of the investment project with the present value

Table A.3

ALTERNATIVE F&E AMORTIZATION METHODS: THE TWO PERIOD CASE

	Beginning of Year 1 Investment	Beginning of Year 3 Current Cost	−	Funded Through User Taxes	=	Planning Gap	Payment Pattern
Historic Depreciation	P	$P(1+i)^2$	−	$\left[\frac{P}{2} + \frac{P}{2}\right]$	=	Shortfall	Even
Historic with Replacement Cost	P	$P(1+i)^2$	−	$\left[\frac{P(1+i)}{2} + \frac{P(1+i)^2}{2}\right]$	=	Shortfall	Uneven
Historic with Replacement Cost & Capital Cost	P	$P(1+i)^2$	−	$\left[\frac{P(1+i)(1+r)}{2} + \frac{P(1+i)^2}{2}\right]$	=	0 if $r = i$	Uneven
Current with Replacement Cost & Capital Cost	$P(1+i)^2$	$P(1+i)^2$	−	$\left[\frac{\frac{P(1+i)^2(1+r)}{2}}{1+r} + \frac{\frac{P(1+i)^2(1+r)^2}{2}}{(1+r)^2}\right]$	=	0	Uneven
Current Mortgage	$P(1+i)^2$	$P(1+i)^2$	−	$\left[P(1+i)^2\left[\frac{r(r+1)^2}{(1+r)^2-1}\right]\left[\frac{1}{(1+r)} + \frac{1}{(1+r)^2}\right]\right]$	=	0	Even

P = Price in Year 1
Asset Life = t = 2
Cost of Capital = r
Replacement Cost Rate = i

of future payments to be made by users in years 3 and 4 to offset the depreciation of the asset. As is shown in Table A.2, users are charged higher taxes in years 3 and 4 to reflect the opportunity cost of the FAA's investment--the (1+r) terms. These payments are then discounted back to the current date in Table A.3. As a result, the present value of the funded depreciation exactly offsets the current cost of the project; the planning gap is zero.[1] The pattern of user taxes remains uneven, however.

Amortization of Current Projects with Consideration of Replacement and Capital Costs and Assuming Constant Payments Each Year

The final example in Table A.1 also results in the elimination of the planning gap. Current projects are amortized into the future in such a way that the payments made by users in each year are equal. The equations used to derive the payments are shown in Table A.2 and are equivalent to deriving the mortgage payment on a house. These payments are then discounted back to the beginning of year 3 in Table A.3 to calculate the planning gap.

The key advantages of this amortization method are:

- It considers both the cost of capital and replacement costs.
- It eliminates the planning gap, and so ensures that current FAA projects will be fully funded.
- It provides an amortization schedule which reflects consumption of capital services as they occur.
- It provides an even payment pattern over time so that taxes do not have to be adjusted each year.

- Finally, the rate of replacement cost and the cost of capital do not have to be equivalent to eliminate the planning gap. A mortgage can be computed to eliminate the planning gap under any set of assumptions regarding these variables.

Treatment of Embedded Capital

One issue remains to be resolved: how to treat the initial endowment of capital embedded in the FAA airway system. In the example in Table A.1, someone initially put up the $10; users pay taxes to replace the project, but no consideration is given to returning the initial $10. There are three ways to account for the initial endowment:

- A return could be imputed to the initial endowment, and carried forward and paid for by users in the current and all future years. In effect, the return would be an annuity paid to account for the opportunity cost of the initial endowment.
- The initial endowment can be treated as a public good provided by the government in exchange for users replacing it in perpetuity as it wears out.
- The initial endowment is a sunk cost for which there is no necessary return because there are no alternative uses. Since there is no opportunity cost, no return is necessary.

The later two interpretations more clearly describe embedded FAA F&E. In the early years of aviation, users may not have been willing to invest in the system until one already existed. Direct user benefits may have been insufficient to justify an

airway system, but government support indicated a belief that social benefits exceeded the costs of establishing the system. Once established, the system helped to stimulate the growth of aviation and direct benefits grew to the point where users could defray future system costs.

The last interpretation--that embedded capital is really a sunk cost--also describes FAA F&E. Salvaging and reconditioning much of the FAA's F&E would cost more than the value that could be received in alternative uses. Therefore, the costs are sunk, and, having no alternative uses, require no return.

There are some notable exceptions to the sunk cost theory, however. Land and real estate holdings of the agency and its aircraft clearly have alternative uses. However, the initial endowment of these assets can be assigned to the public good category just as can other embedded F&E.

Finally, in the past, F&E has been expensed. No return on capital has ever been imputed to the initial endowment of F&E.

For these reasons, no return is imputed to embedded F&E. Also for these reasons, paying for embedded F&E is largely irrelevant in the present study. Consideration of current and future F&E, and how it should be amortized, is the relevant problem facing the FAA.

Application of Mortgage Method to FAA Cost Allocation Problem

The problem faced by the FAA is more complex than that discussed in the previous sections. The FAA is interested in developing a set of taxes to offset the costs of current and future F&E projects. The agency is also interested in developing

a set of taxes which both reflects consumption of capital services, and provides for a relatively even payment pattern over time.

The mortgage method is ideally suited to accomplish these objectives. In order to evaluate current and future F&E projects, expected future F&E expenditures are discounted back to 1986. A mortgage can then be calculated to exactly offset the cost of those expected expenditures over the life of the assets.

Three data elements and related assumptions are necessary to implement the methodology:

- o A stream of F&E projects over time,
- o The average asset life of F&E,
- o An appropriate discount rate.

The stream of expected future F&E expenditures was provided by APO based on the best information currently available within the agency. The expected asset life was assumed to be 13 years, which is consistent with a recent internal APO study indicating that the average FAA reequipment cycle is approximately 13 years. This is the best information available on the life cycle of FAA F&E. Existing FAA records do not permit an exact tracking of the depreciation schedule for different pieces of equipment. Finally, the OMB standard ten percent discount rate was employed as the cost of capital.

It should be noted, in addition, that the FAA's expected F&E stream over time includes an estimate of inflation and the impacts of technological change. No additional explicit assumption concerning replacement costs needed to be made for the analysis.

NOTES

[1]The cost of capital cancels out in the planning gap calculation because future taxes must be discounted to 1984 to compare the results with the other cases.

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